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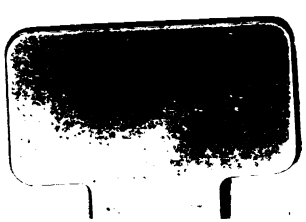

TEGG'S

HANDBOOK FOR EMIGRANTS.

TEGG'S

HANDBOOK FOR EMIGRANTS;

CONTAINING

Useful Information & Practical Directions

ON

DOMESTIC, MECHANICAL, SURGICAL, MEDICAL, AND OTHER SUBJECTS,

CALCULATED TO INCREASE THE COMFORTS, AND ADD TO THE CONVENIENCES OF THE COLONIST.

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PREFACE.

THIS little work is intended for the use of Colonists who, living at a distance from a settlement, must be more or less dependent upon themselves for the conveniences and comforts of life.

The Author has found it difficult to draw a line of demarcation between the subjects to be introduced and those to be omitted, as the volume must be kept within a certain size and cost, or it would not be within the reach of many emigrants; this will account for the omission of subjects that might increase its value to some, but by limiting its circulation decrease its general usefulness.

Since it was written, a friend of the Author's, a settler in Canada, has assured him that the medical part of the volume is much wanted, and will be very useful to the settlers; in the part of the country in which he is located, such is the dearth of information on the

subject, that a little book called "A Companion to the Medicine Chest" is considered of value, though giving little more information than the doses of drugs, &c.

Trusting that the volume may be found useful to the extent of its humble pretensions, and that its readers may not require frequent reference to the medical portion of it, the Author, without further preface, ushers it to the public.

KILBURN, May 27, 1839.

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TEGG'S

HAND-BOOK FOR EMIGRANTS.

CHAPTER I.

Temporary and permanent Residence.—Furniture, Kitchen Utensils. &c.—Cabin Furniture, &c.—Cabin and Colonial Stores.—Clothes. —Medical Preparations.

WHETHER you emigrate to the back-woods of America, to Van Diemen's Land, to South Australia, or to any other colony, keep the following words of Birkbeck in your mind; —"When you have gained your point, that is, the spot where you intend to settle, you may take leave of dependance upon everything except yourself."

If you are sufficiently rich, you will probably take workmen from the nearest settlement to build your house and clear the land; but that done, and they dismissed, you must depend upon your own resources for any repairs, alterations, or additions, you may require; the latter, from the impossibility of knowing your own wants under circumstances so novel, will, in all probability, be many; and unless you are content to submit to constant inconvenience, you must not only have the tools of the carpenter, blacksmith, plumber, &c. &c., but must be prepared to use them yourself, or have some one on your establishment who can. Take out then as great a variety of tools as you can afford, that you may

seldom be obliged to resort to shifts, as, however well supplied, you will have ample opportunities of exercising your ingenuity and contrivance, and you will find not only comfort but profit in making your domestic arrangements as complete as possible.

Many emigrants become dissatisfied and unhappy, because, going out with the expectation of roughing it, as it is called (very romantic in theory, but very disagreeable in practice), they do not prepare themselves to meet many inconveniences within their own power, and thus time and temper are sacrificed to the want of a little forethought.

Those who have only sufficient funds to meet the purchase of land, implements, and stock, cannot of course devote much money to domestic conveniences; but even these persons would find it more advantageous to curtail the extent of their proposed operations, and devote some of their capital to domestic comforts, than risk privations that sour the temper, enervate the body, and lead to disease and consequent incapacity.

I shall proceed upon the supposition that the emigrant has sufficient funds to meet all necessary expenses; and he can curtail and modify the nature and extent of his preparations according to his actual circumstances.

The emigrant to America need not take clearing or agricultural tools, as he may obtain them of as good quality, and at a cheaper rate, in that country. The same holds with regard to articles of domestic consumption, such as tea, tobacco, spirits, &c. In South Australia, on the contrary, he will not be able to obtain the former without considerable expense, if at all; and most of the latter are dearer and of worse quality than here.

The artisan who, whether a workman or an employer, must of course live at a settlement, will not require the same resources as the agriculturist; but he must remember, particularly if he emigrates to South Australia, that he may not

be able to hire a house, or part of one, but at a very heavy expense, if at all. He had better, therefore, not only take out some kind of temporary shelter, but make arrangements for building a permanent house in the colony. This will be more particularly necessary if he be a master, and engaged in a business requiring extensive premises.

In the choice of a colony, the emigrant will be guided by many circumstances, that will, in all probability, influence his decision as much as the abstract advantages of any particular country; and were it otherwise, the subject has been so completely canvassed in every variety of shape, that little new could be said upon it. To artisans and labouring agriculturists, South Australia, perhaps, independently of a free passage, holds out the greatest inducements; as the country is particularly healthy, labour in requisition, and land cheap While, though it cannot be expected to be altogether free from the inconveniences inseparable from a new colony, it possesses one advantage that will counterbalance many of them,—the not being a penal settlement, and consequently free from, at least, convicted crime.

That portion of the volume devoted to arrangements previous to emigration must be considered merely as a remembrancer; and as such, will not, I hope, be found altogether useless. In the hurry of preparation, and amid the anxiety of parting, probably for ever, with relatives and friends, a man's memory, however methodical at other times, may require assistance; and it sometimes happens that the most ridiculous omissions take place, not only in the comforts, but in the absolute necessaries of the emigrant. I knew a gentleman who, having taken out bedsteads of a particular construction, was six months before he could have them put up, from having omitted a winch necessary for the purpose; things of this kind are of daily occurrence, emigrants forgetting that they cannot supply their wants with the same facility as in this country.

If you emigrate to a new colony like South Australia, or locate at a distance from a settlement in an older one, you will be obliged either to build such a hut as you can manage with the produce of the country, logs, reeds, shingles, or mud, for a temporary shelter, or take out a tent or portable house from this country.

A canvas tent properly put up and floored with wood, is a very comfortable substitute for a house in fine weather and without a family; but in wet weather, and with a family, it is by no means a pleasant kind of habitation, and can never be made so secure from the inroads of reptiles and insects as a wooden house; a consideration of no slight importance where females are concerned.

Wooden houses, ready made and prepared to put up, may be purchased of Manning, of Holborn, of from one room to five or six; or you may have one made after your own model by any carpenter of common ingenuity. Those built by Manning are covered with a kind of tarpauling; but if they are intended to be used for any length of time, they should, as soon as possible, be more substantially roofed with either shingles or reeds. The expense, and best method of doing this, will depend upon circumstances, and can only be ascertained on the spot; the price, both of the material and of labour, varying in different colonies. Either a wooden house or a tent may generally be sold for nearly, if not quite, the original cost, after it has served the purpose of the emigrant.

Having settled this matter, the next consideration is a permanent residence, and though the material of which it may suit the purpose of the emigrant to build it, will depend upon the facility with which he may be able to obtain stone, clay, or oricks; yet by taking out the doors and windows ready made, he may save considerably, both in packing-cases, freightage, and workmen's wages. The doors may be made two or three inches larger than necessary, and formed into packing-cases,

which will contain not only the window-sashes, but many articles of furniture; and if they are made with the faces inside, and stowed with common care, they will receive little or no damage; the edges, by which they were joined, may be slipped off with a saw, and any scratches, &c., removed with a little glass-paper. It need scarcely be observed that the necessary bolts, bars, locks, hinges, bells, pulls, cranks, &c. must be taken out from this country.

If a zinc or slate roof is required it must be purchased here, and, exclusive of workmanship, zinc is perhaps the cheapest roof there is—it will cost about fourpence halfpenny a square foot; and if the edges be perforated with holes, it may be nailed to rafters adapted to the purpose, and the joints secured with a little solder; a job any common plumber may do, or which, if you have any ingenuity, you may accomplish yourself. It should, however, be painted.

The emigrant will require much the same furniture, &c., that he would in this country; the difference consisting more in the make of the articles, than in the things themselves. Chairs and sofas, for instance, may be made complete as to all their parts, but having the seats, backs, and legs separate, which, together with the cross-pieces, may be joined in the colony. Tables may also be made separate from the side-pieces and the legs, which may be made either to screw in or to fix in the common manner. (If you take out doors made into cases they will form excellent packages for chairs, tables, &c.) Bedsteads should be made of iron or brass, and fitted with mosquito curtains; a bale of curled horse-hair, with a sufficient quantity of ticking to make mattresses, will be better than taking them out ready made. Chests of drawers form excellent packing-cases for clothes, &c., but should be guarded by, at least, open packing-cases. If you intend to have them, you must not forget carpets, rugs, &c. You will also require a moveable grate to burn wood.

Kitchen Utensils, &c.—You will need some additions

to those usually required in this country. These consist of a portable copper with flues, or a sufficient quantity of iron plate to make them; a portable wrought-iron oven (unless you intend to build one immediately of brick or stone); a portable safe, or plates of iron wire, or perforated zinc* to make one; iron wire, or perforated zinc dish and meat covers; frying-pan and gridiron, with handles four feet long; a griddle and a three-legged iron pot, with a cover and a ladle, and having (if you are likely to cook in the open air) a triangle and rack to support it. Have everything you can made of iron, which is much more durable than tin or copper, and infinitely safer than the latter; substitute tin or copper for crockery-ware in every possible case. Japanned tin jugs, with lips and covers, formerly called black jacks, you will find very useful; and pewter plates, dishes, basins, and mugs, will save breakage and inconvenience. Besides plates, dishes, tea-cups, &c., &c., and you must not forget to allow for breakages, take care to have a good supply of coarse ware, such as bread, cheese, milk, and pickling pans, jugs, jars, &c.; and have covers to as many of them as possible, to protect their contents from the inroads of insects, &c.

The remaining domestic utensils, such as pails, brooms, clothes, shoe and scrubbing-brushes; flat, box, and italian irons, knives and forks, clothes-lines, candlesticks, &c., will be purchased much cheaper in this country; and if you have some of your packing-cases made of proper wood, and sufficiently thick, they may be converted into washing-troughs and coolers when they are done with. By taking out the heads of casks they form excellent packages for dry goods; and if you take out a pipe or a hogshead in this manner, you may have it converted into a mash-tub in the colony. If you intend to have a fixed oven and copper, you must take out the latter, and the iron-work for both.

Besides these things, you will, if a family man, require a

* Perforated zinc will cost from 6*d.* to 7*d.* a square foot.

few additions to your cabin furniture. These will consist of a hanging lamp, with a wire guard, similar to a safety lamp; candlesticks made upon the same principle as gig lamps, the candle being contained in a tube, and kept at the same height by means of a spiral spring that pushes it up as it consumes; a pewter basin, and wide-mouthed bottle; a filter, and a portable water-closet. There may be a few other things that you may not be able to settle, until you see how the particular cabin you are to occupy is furnished, and till you have made your arrangements with the captain.

STORES.—Although, if you agree to dine and board at the captain's table, you may not absolutely require any cabin stores, you will find it convenient to be prepared for cases of emergency, by having resources of your own. It will be advantageous also to take out a supply of certain things to last for some time after your arrival in the colony, till you can make arrangements for a regular supply. Those devoted to the voyage you had better arrange in the following manner:—have a strong box divided into twelve or more compartments; to six of these have tin canisters fitted, three of the others may either be fitted with boxes, or have lids accurately adapted to them. The canisters will contain, first, green tea; second, black tea; third, coffee; fourth, arrow-root; fifth, spices; and sixth, anything else you wish to take. The three compartments with lids (and which must be larger than the others) will hold sugar, cocoa, and chocolate; and ginger beer, seidlitz and soda powders, &c. The remaining three will hold bottles for brandy, rum, &c. If you take preserves you will require one or two more divisions. Of course the size of the box and compartments will depend upon the extent of your family; and you will find it extremely useful after your arrival at your destination.

If you take out preserved fresh provisions, of which you may obtain almost any kind,—mutton, peas, salmon, beef, broths, soups, &c., that will keep for years, you had better

pack the tin cases, in which they are sold, in a separate box. Biscuits will keep best in tin cases, which, for safety, may be fitted with padlocks.

The following list, from which the emigrant can select what suits his purpose, may serve as an assistance to the memory.

Tea
Coffee
Prepared cocoa
Prepared chocolate
Rice, ground and whole
Sago
Tapioca
Groats
Do., prepared
Isinglass
Prepared meats
Prepared vegetables
Portable soups
Biscuits
Preserves
Citric acid
Arrow-root
Herbs, dried and powdered, in bottles
Essence of mint
Essence of thyme
Essence of eschalotte
Essence of parsley
Sauces and pickles
Celery seed
Ginger beer, Soda, Seidlitz } Powders
Essence of spruce
Bottled beer
Wine
Spirits
Capillaire
Candles
Lamp oil and cotton
Soap, and scented do.
Paper, pens, and ink
Wafers, wax, India-rubber
Slate and lead pencils
Lucifers
Sand, glass and emery papers
Black-lead
Shaving powder.

Unless you intend to suffer a martyrdom, take out a good stock of razors, and the means of setting them, and only take out one at a time for use, during the voyage, as the sea air dulls their edges very quickly, and in most colonies cutlery is dreadfully dear. The best kind of dressing-case for the voyage is one that rolls up. Those made of mahogany, rose-wood, &c., will not stand the wear and tear. The best soap to use for shaving, during the voyage at least, is shaving powder; a little of this thrown into your basin, and, rubbed round with a wet brush, forms an excellent lather: it may be kept in a strong tin case well stopped.

* You will find it better to take out the ingredients to make ink and blacking, rather than a large stock of either.—*See Recipes.*

CLOTHES, &c.—Very little need be said on this subject, as the extent and nature of your wardrobe will depend upon your avocations, and the station you hold in society. You will, of course, take out a supply of linen proportioned to the length of the voyage, and the facilities of washing it, on which subject you can obtain information of the captain, or one of the agents; if you wish to be comfortable, have enough. Other articles of dress may be much the same as you would wear in this country, except perhaps in the article of shoes, and those you intend to set apart for travelling. The best dress to wear at sea, is a sailor's jacket and trowsers, and to these must be added one or two tough defences against the weather, such as a pilot coat, a pea jacket, or a heavy waterproof cloak. You should be prepared with strong boots to fit about the ankle, and leather leggings for colonial use, as, whether you settle in a town, or at a distance from one, you will not find the paths flagged, or the roads macadamized; in South Australia, particularly, the neighbourhood of Adelaide is infested with a strong prickly grass that will soon make a painful acquaintance with your legs, if they are not well guarded. I need scarcely mention strong gloves; with regard to your supply of these things you must of course be guided by the probable opportunities of renewing them, keeping in mind that all kinds of wearing apparel are invariably dear in a colony. One thing connected with this subject I would strongly recommend you to take, lasts to fit your own feet, and those of the grown-up part of your family.

The female part of your family will, of course, attend to their own wants, but, as they will not meet with a Waterloo House, or an Ellis's, they had better be cautioned to supply themselves well with needles, threads, cottons, silks, ribbons, tapes, buttons, buckles, hooks and eyes, bodkins, thimbles, pincers and scissors, not forgetting buttons and braces for your own repairs, and all the paraphernalia that are, or are thought, necessary for female work.

PREPARATIONS FOR THE VOYAGE.—Nine people out of ten

think it necessary to take leave of their friends in a series of jollifications; the consequence is, that they embark with deranged stomachs, and in the worst possible condition for a sea voyage. Instead of this, go into regular training at least a fortnight before you go on board, and live very abstemiously. Take a blue pill, or four grains of calomel, at night, and a black dose on the following morning, and repeat this during the last fortnight, every fourth night and morning; if you do this, you will suffer infinitely less from sea-sickness, and your prudence and self-denial will produce their own reward.

When on board, do not let qualmishness prevent your eating at regular times, if you can possibly avoid it; but do not drink much, particularly warm liquids, as they increase the tendency to sea-sickness. If you are violently sick, take twenty grains of carbonate of soda three times a-day, and wash the mouth out with a solution of the same after every attack. This will neutralise the free acid in the stomach, in a great measure prevent the tendency to vomiting, and act as a mild laxative. In violent cases of this kind I have seen great benefit derived from taking a grain of the watery extract of opium occasionally.

No directions can be given for your first proceedings in the colony, as they must depend upon a variety of circumstances, over which you may have no control. If you go out as an agriculturist, and intend to locate at a distance from a town, you may be obliged to wait some time at head-quarters, and must make your arrangements on the spot. Unlike the mother country, where the demand, and the accommodation, are generally on the same level, in a young country, the influx of comparatively a few may make the demand infinitely beyond the power of accommodating, and *vice versâ*. As a general rule, however, house rent is very high in all colonies, and, for this reason, you will find it advantageous, both in regard to your comforts and in a pecuniary point of view, to have a temporary residence of some kind, *of your own*.

CHAPTER II.

The Agriculturist.—Carpenter.—Brickmaking.—Bricklaying.—Plastering.—Whitewashing and Colouring.—Painting.—Plumbing.—Glazing.—Paper-hanging.—The Blacksmiths.

THE AGRICULTURIST.—Your wants as an agriculturist will depend upon many circumstances; on the extent of your location, on the nature of the land, whether it has been cleared or not, whether covered with heavy timber or brushwood, &c., and upon the quantity you intend to put under cultivation at first. If you locate at a distance from a settlement you will be thrown on your own resources, somewhat in proportion to the distance. Besides the usual tools and apparatus for clearing land, and the necessary agricultural implements to cultivate it, you will be obliged, to a certain extent, to be your own carpenter, blacksmith, bricklayer, plasterer, painter, and glazier; for, unless you are content to be constantly exposed to inconvenience and vexation, you, or one of your establishment, must occasionally exercise each, and perhaps all these several occupations. At all events, you had better be prepared with the tools necessary, as you will often find it easier to obtain the services of a regular artisan, if you can supply him with the things necessary to work with.

As the tools alluded to will be found under the respective notices of Carpenter, &c., it would be a waste of words, and an ingenious specimen of book-making, to enumerate them here.

I shall suppose you intend to locate a maiden tract, and shall therefore give a list of all the apparatus necessary for clearing, for the cultivation of the land, and for your garden.

The number of the different articles you may require will, of course, depend upon the extent of your operations:—

	£	s.	d.	
Felling axes, each . . 3s. 6d. to	0	4	6	
Cross-cut saws	0	10	0	
Maul, rings, and chains				
Grubbing tools . . . 3s. to	0	5	0	
Splitting tools	0	0	4½	*lb.*
Wedges in setts	0	0	4½	*lb.*
Crowbar	0	0	4½	*lb.*
Pickaxes, each	0	3	0	
Scotch plough, with extra iron work .	4	4	0	
Harrow, with the requisite iron work .	2	10	0	
Steel flour-mill	3	10	0	
Chaff cutter	0	12	6	
Flour sieves . . 4s. 6d. to	0	5	6	
Spades, each	0	3	0	
Shovels	0	3	0	
Pitchforks	0	2	10	
Potato forks	0	4	0	
Scythes	0	4	6	
Reaping-hooks	0	2	6	
Bill-hooks	0	2	0	
Sharpening stones per doz. . . .	0	2	6	
Rakes . . . . . 1s. to	0	4	0	
Hoes . . . . . 6d. to	0	2	6	
Sheep bells and straps . . 1s. to	0	2	0	
Iron wheels and spindles for barrows . 4s. to	0	8	0	*pair*
Do. do. truck . 4s. to	0	8	0	*pair*
Corn sieve . . . . 2s. to	0	3	0	
Measures				
Stable lantern . . . 2s. to	0	3	6	
Iron work for roller and bush harrow .				

GARDEN.

Spade, rakes, hoes (see above) .				
Spuds . . . . . 6d. to	0	1	6	
Watering-pots, tin, painted . . 1s. 3d. to	0	6	0	
Do. zinc *				
Shears . . . . 4s. to	0	7	6	

It may be as well here to give you a list of garden seeds, from which you can select such as may suit your purpose.

* The zinc watering-pots are a little dearer at first, but eventually much the cheapest.

Those marked with an asterisk have succeeded both in Sydney and South Australia:—

*Beet, red and white
*Brocoli, dwarf green
purple
*Cabbage, drum-head for cattle
* early Battersea
* York
sugar-loaf
*Beans, early long-pod
* dwarf prolific
Windsor
Scarlet-runners
* French liver-coloured
* black
Lettuce, Bath coss
Brighton coss
brown cabbage
Mangel-wurzel
Onion, Spanish silver-skinned
Parsnips
*Carrots, early horn
* long Altringham
orange
*Cauliflower
Celery
*Cress, American
* Indian
*Cucumbers, Walker's long green
* white spine
* prickly
Peas, dwarf marrows
imperial
early frame
Knight's marrows
Prussian blues
Spinach, Round Beckley
New Zealand
Vegetable marrows

Gourds, melons, strawberries, and the different species of peaches, nectarines, &c., are likely to succeed in South Australia.

CARPENTER.

In a new establishment, in which you will at first scarcely know your own wants, alterations, additions, and repairs will be frequently required, and unless you, or some of your establishment, can do jobs in carpentering, you may frequently be obliged to do without conveniences that a little ingenuity would supply. I have given a list of the necessary tools, and if you are not disposed to be your own workman, you may probably find one among your men capable of using them. If you do not wish to go to the expense of new tools, and have time and inclination to spare, there are many shops in London where you may purchase them second-hand, and, for all useful purposes, quite equal to new, at about half the price.

LIST OF TOOLS.	£	s.	d.
Hand saw, 5*s.* 6*d.*; tenant saw, 5*s.* 6*d.*	0	11	0
Bow saw, extra blades, 5*s.*; key hole do., extra blades, 5*s.*	0	10	6
Jack plane, 5*s.* 6*d.*; smoothing plane, 4*s.* 6*d.*	0	10	0
Grooving plane, moulding planes			
Spoke shave	0	2	6
Plough			
Six chisels, from quarter of an inch to two inches	0	3	0
Six mortising do.	0	6	0
Mallet	0	0	9
Stock, and sixteen bits, rose-head	1	5	0
American screw-augers, from 1*s.* to	0	2	0
Spike gimlets 9*d.*	0	1	6
One do. common do.	0	2	6
Augers, each	0	1	0
Twelve brad-awls, 1*s.*; twelve extra blades, 1*s.*	0	2	0
Screw-drivers	0	0	4
Pincers, wrench hammer	0	3	6
Claw hammers	0	0	9
Rule, square	0	2	6
Turkey stone and oil bottle from 1*s.* 9*d.* to	0	5	0
Adze	0	2	0
Punches, glue-pot, and glue	0	2	6
Bed-winch	0	2	0

If you add to these a wooden male and female screw for a work bench (2*s.* 6*d.*), which you may make in the colony, you will have an efficient supply of tools for any kind of common work.

You must not, however, forget the iron-work necessary for your house, and materials to work with; you will require locks, padlocks with hasps and staples, thumb-latches, bolts, bars, window-fastenings, door-chain, hinges, brackets and holdfasts, flooring and other brads assorted, spike, clout, batten, rafter and shingle nails, fourpenny, sixpenny, and eightpenny headed nails, brass, tin, and black tacks, meat, brass, and iron hooks, screws assorted at per gross.

Perhaps nothing is more difficult than to describe a mechanical operation. I think the best way of making the

subject understood will be to show how the different operations of carpentering are applied in one or two instances, from which the reader will see how to apply them in others.

Mortising is employed in making doors, window-sashes and frames, chairs, tables, beer-stands, &c. &c.; it gives strength and neatness to the work, and in many instances could not be dispensed with.

When particular neatness is required, the mortise is not cut through; thus leaving no external appearance of a join. When, however, the tenon is inserted, it has still to be fixed in; and this may be done either with glue, with beads or nails, or by driving wooden pegs through the mortise and the tenon. If the tenant comes through, it may be strengthened by cutting a slit in the end, and driving in a wedge.

Rabbeting.—Rabbeting consists in cutting a groove in the edge of a piece of wood, to join it to a piece of the same, or any other thickness. Thus, if you wish to join two pieces of wood an inch thick, you remove a strip half an inch square from the upper edge of one, and the lower edge of the other piece; so that when they are put together, the projection in each piece will fall into the groove in the other. This is performed by means of a particular kind of plane.

Mitreing is a means used to join the ends of two pieces of wood at right angles; as, in making boxes, &c. It consists in cutting each piece diagonally; so that, when fitted together, they form a right angle. It is employed in working mahogany, rose, and other fine woods, when you wish the grain to be continuous, and the ends of the wood that will not take a polish, to be concealed.

Another means by which the ends of pieces of wood are joined together, as, in making boxes, &c., consists in cutting the ends into a series of mortises and tenons; so that the tenons in one piece fall into the mortises in the other. For instance, suppose you wish to join two pieces of wood, five inches wide and one inch thick, in this manner, make a mark across the wood, an inch from the end; mark the end lengthways into any number of divisions, and, with a tenon-saw, cut down these marks to the transverse line; then, with a chisel, cut out every alternate division. Proceed in the same manner with the second piece; but if you have cut out the first, third, fifth, &c. divisions in the first, you must, in this, remove the second, fourth, sixth, &c. You now fit the pieces together, and the tenons in one piece will fit into the mortises of the other, and *vice versâ*, and may be fixed either with glue or brads.

Dovetailing is another means of joining wood for the same purposes as the last. It consists in cutting the ends into a series of mortises and tenons; the latter being of the shape of an inverted cone. It is impossible to learn the method of performing it from description, even with the aid of diagrams; and I shall not, therefore, attempt to teach it, but would advise the emigrant to procure pieces of board cut into dovetails, mortises, mitres, rabbets, &c. &c., to serve as models. They will add little to his luggage, as they need not be above four or five inches wide, and four or five long, and will be more available than any description could possibly be.

The operation (if I may use the term) of mortising, is one that will be found most generally useful; it consists in joining two pieces of wood by inserting a part of one piece, called the tenon, into a hole, called a mortise, cut in the other. This is managed in a variety of ways, but as the object is to obtain a firm joint without weakening either piece more than necessary, a certain proportion should be kept between the mortise and the tenon, for instance, if you wished to mortise a piece of wood three inches square, and of any length, into a piece of the same thickness, were you to cut the tenon two inches wide you would weaken the mortise, as there would be only half an inch on each side, but if you cut the tenon one inch wide and three long, both pieces would be equally strong; you will not, however, in every case be able to do this.

Example.—A frame three feet square, made of wood three inches square. Cut four pieces of wood three feet long and three inches square; cut a mortise two inches long and one inch and a half wide, commencing one inch from the end, in each end of two of the pieces; mark off three inches on two opposite sides, at the ends of the two other pieces, and, with a tenant-saw, cut down three-fourths of an inch on each side; remove the pieces separated, with a chisel, and you will have a tenon one inch and a half wide and three long; reduce the length (*not the depth*) of these to two inches, by cutting off one inch from the outside; and when the tenons are placed in the mortises, the two pieces of wood will form right angles.

Outbuildings constructed of wood may be erected with very little trouble, and by any one of the commonest ingenuity. As

an example, suppose you wish to erect a building twelve feet long by ten feet wide, you sink strong uprights into the ground, about three feet apart, support these by battens placed diagonally, and connect them by means of cross-pieces round the bottom, middle, and top, leaving two unconnected in the middle for a door-way. Into these two mortise a cross-piece six feet four from the ground, to form the door frame; if you require a window, make a frame of the proper size strongly mortised together, and fix it wherever you feel disposed; one of the middle cross-pieces will serve for its support. You had better make your frame for the roof separate, and put it up afterwards; mortise strongly together a frame the size of the building, to the centre of each end fix a strong upright, two feet high, and connect them by means of a rafter of a triangular shape, passing along the building from one end to the other; you now fix joists from the rafter to the frame, and thus the frame of a roof sloping each way will be formed, which may be fixed to the top of the building by means of strong wooden pegs and rafter nails. You now commence putting up your boarding, which must be thicker at one edge than the other, and is called weather boarding. Begin at the bottom and work upwards, of course leaving the apertures for your door and window uncovered. The weather boarding is put up with the thickest edge downwards, the edge of each piece overlapping that below it, so as to form a kind of shoot to throw off the rain.

Your roof will of course depend upon the facility with which you can procure reeds, shingles, rushes, or wood. If you put up boarding, it must be placed in the same manner as for the body of the building.

It you cannot procure boarding you may interlace the uprights with twigs of some flexible wood, or nail laths, or split wands along, so as to form a surface for plastering, which you may do either with clay or plaster, as may suit your convenience.

You may construct a door by nailing pieces of wood across flat boards.*

It would be easy to multiply instances in which the power of using carpenters' tools may be rendered available—beer-stands, dressers, tables, forms, milk-stands, &c., may with very little ingenuity be constructed without the aid of a carpenter, and the occupation will serve as an amusement during many hours that might otherwise be unemployed. It may be as well to say a word or two on the use of the tools:

Saws.—In using the saw, do not press heavily on the tool, but let it run easily and lightly over the wood, occasionally greasing it to lessen the friction. When ripping (cutting with the grain of the wood), insert a wedge of some kind as soon as your saw has cut to a depth that will allow you to do so.

Planes.—The jack-plane is used to take off the first roughness of the wood, and the smoothing-plane to finish. In using them, you must not run them along quite straight, but a little obliquely, and do not press upon the tool. The grooving-plane is used to form grooves and rabbets; this, of course, must be worked quite straight.

Chisels are used to smooth and trim wood in parts for which the plane cannot be employed, &c.

Mortising-chisels are employed to cut mortises; they are used with a mallet.

Centre-bits.—Augers, screw-augers, gimlets, spike gimlets, and brad-awls, are used to perforate wood. The brad-awl merely separates the fibres, and is, therefore, apt to split the wood; the gimlet partly separates the fibres, and partly cuts the wood away, and is very likely to split very dry wood; the screw-auger, and the centre-bit, on the contrary, cut out the circle; so that they may be used on any kind of wood without the danger of splitting it. All these work more easily if occasionally greased.

The Plough is used to cut grooves in the edges of boards; it is run straight along.

The other tools, hammers, pincers, screw-drivers, &c., cannot require description, but as a general rule, if you wish to use your tools pleasantly, and perform your work neatly,

* For instance, suppose your door to be six feet four by two feet eight, procure three pieces of board the proper length and thickness, and three other pieces four inches wide, one inch thick, and two feet three inches long, and nail them across the others, so as to connect them together.

keep them in good order. There can be scarcely a greater trial of patience than a saw that cuts badly, a plane that jags the wood instead of smoothing it, or a chisel that cuts no better than a screw-driver.

BRICKMAKING.

UNDER some circumstances you may not be able to buy bricks without sending a considerable distance, and going to more expense than it would be to make them, than which nothing is more easy. In this country you are obliged, by the excise laws, to make bricks of a particular size; but in a colony the case will be different, and you may make them of any size to suit your purpose. The usual size is nine inches long, three wide, and two high.

To make bricks you will require, first, a mould. This you must be very dull if you cannot make yourself, either by fixing four pieces of hard wood together, in the shape of a box without a bottom, or cutting the size and shape in a solid block; a few pieces of flat board, half an inch thick, a little longer than the mould, and a scraper. These are all the implements necessary to operate on a small scale. The materials, clay, sand, and, if you have them, ashes. Dig as much clay as you are likely to require; sprinkle it with water; turn i over and over, sprinkling it each time, till it is equally moistened: work it well up into a pappy homogeneous mass, and then add sand in proportion to the strength of the clay. Place some planks upon blocks or stones, so that they may be about six inches from the ground, for the reception of th bricks, and then commence the making. Put a vessel o water, some sand, your mould, scraper, and mould boards, upon a slab placed at a convenient height. If you have the assistance of a boy or man, let him work up the clay well

* Which you may try by making three or four bricks, with different proportions of sand, and burning them in a common fire.

together into lumps, each rather more than a brick; have these brought and placed on your left hand, take one of your boards, sprinkle it with sand, and place the mould upon it; sprinkle one of the lumps of clay with sand, throw it with some force into the mould, and press it down so that it may fill every part; then scrape it off even, with the scraper, making an oblong depression in the middle; turn the brick out of the mould, and proceed in the same manner with another and another, till you have a sufficient number to take to your drying place. If you are making only a small quantity, you may place them, as they are made, upon a plank with two handles at each end, by which it may be carried; lay them on the planks to dry, about three inches apart each way, and, if the planks are nine inches wide, they will contain two rows; place the second course so that the middle of one brick may come over the space between the two lower ones; thus interstices will be left in every direction for the passage of the air. If you make 1000 bricks of the usual size, you will require 50 feet of boarding nine inches wide, and the stack will be two feet and a half high. When you have completed it, cover the top with straw or rushes, and leave them to dry.

When perfectly dry, and not before, you must burn them; and as you will, in all probability, be obliged to do this with wood, you must proceed accordingly. Instead of building them into a kiln, for which there would be too few, you had better build them into a square, three or four bricks thick, and surround them with any kind of litter or wood, and burn them till they are sufficiently hard. The fire must be moderate at first, and gradually increased till it is sufficiently strong. Towards the end of the process it may be allowed to go out very gradually. By this caution you will probably avoid cracking the bricks, which, if they were exposed to a very strong fire at first, would certainly take place. When bricks are manufactured on a large scale, a mill is used to prepare the clay. The mould must be of iron, and barrows

adapted to the purpose are employed to convey them to the drying place; and when they are burned, they are built into a hollow square, called a kiln, and burned by a fire inside it. If you want to pave a yard or a dairy, you may easily make some thick paving tiles, in the same manner as bricks, and of any size and shape that may be convenient; but less sand will be required to temper the clay.

BRICKLAYING.

It is impossible to teach the more difficult operations of bricklaying in writing, but there are many things, the power of doing which may add considerably to your convenience, which may be acquired in this manner. The tools required are few and simple, and may be turned to account for other purposes. They consist of a large and small trowel, a horizontal and a perpendicular plumb-line, and a piece of string for a level. The means by which bricks are cemented together are mortar and cement.

Mortar is made by mixing freshly-slaked quicklime with different proportions of sand, and a sufficient quantity of water to make it of a proper consistence.

Bricks are made of one regular size, that is to say, three inches wide, two high, and nine long, and the art of laying them consists in putting the same quantity of mortar between each course, so that they may be of a regular height, and this is managed by fixing a line at the height to which the course is to come, and adjusting the edges of the bricks to it, occasionally trying the level by means of the horizontal plumb-line, which is made in the following manner:—A piece of board twelve inches wide, and from two to three feet long, is cut obliquely from the ends to the centre, where it forms an angle; this is cut off, and a notch made exactly in the centre. In the middle, about one inch from the bottom, an egg-shaped hole is made, and a line, to which a leaden weight is attached, is fixed in the notch, and adjusted so that the weight

falls exactly into the middle of the hole; when, the lower edge of this instrument being placed upon your work, the leaden weight comes in the centre of the hole, it is level; if it be not, the lead will fall *from* the *higher part*. The other kind of plumb-line is used to adjust the work perpendicularly. It consists of a straight lathe, about three inches wide, having an egg-shaped hole near the bottom, and a notch in the centre of the top. The lead is adjusted in the same manner as in the former case, and the accuracy of the work is ascertained by placing the edge perpendicularly against it.

As an instance, suppose you want to build a cistern to hold water, which in many places you may find a great convenience. Suppose it is to be five feet long, three wide, and four deep, upon a foundation one foot and a half high. You will require about five hundred bricks, twelve bushels of mortar, and about the same quantity of Roman cement, and, if you can procure them, two slabs of stone, one four feet long and three feet wide, and the other nine inches square. These should have holes drilled in the centre, one for the insertion of a tap, and the other of a waste pipe. You proceed in the following manner: dig a trench the size and shape of your intended cistern, and about nine inches deep; make the bottom of this level all round by means of the plumb-line, and lay a course of bricks in it, leaving out two in the middle of the front; then fix a line by means of a piece of iron at each end, on a level, two and a half inches above this layer, and put so much mortar between the bricks as will bring the top of the next course exactly even with this line. Build layer after layer in this manner till your work is one foot and a half above the ground; you now put a layer of mortar upon the bricks, and place the larger slab exactly level upon it; build upon this in the same manner as before (trying it occasionally with the plumb-line), putting the smaller slab in the middle of the first and second course, and after that, build the square perfect with bricks, till it is of the requisite height.

You must allow the mortar to dry, and then, having mixed your cement, cover the inside with it, laying it on about an inch thick, and quite smooth and even. It will adhere better to the bricks, if you roughen their surfaces with a hammer before it is applied. Take care not to leave any cracks through which the water might ooze. The hole in the front is intended for a tap, and that in the bottom for a waste pipe, or a long plug, by removing which the cistern may be easily cleaned out.

In the same manner you may build a brick fire-place, which will, with a moveable iron plate, serve for baking muffins and other things, and without it for candle making, boiling maple sugar, and a variety of useful purposes. You will find it conducive to your comfort and convenience to have the power of building drains, sinks, reservoirs, &c. In short, if you can handle a trowel yourself, or have any man on your establishment who can, you may amazingly increase the amount of your accommodation, while if you have clay and limestone on your land, a circumstance more than probable, you will be at no cost for material.

PLASTERING consists in covering brick or other work with a coat of some substance that may be made to fill up the interstices, and afford an even surface for washing, papering, or painting. Plastering may be plain, or ornamental, as may suit your powers, or your purpose. When plastering is performed over brick-work, the surface of the bricks should be made uneven by means of a blunt chisel, or a hammer; and then having mixed your plaster, which may be made (for the first coat) with freshly-slaked lime and sifted sand, or loam and water, lay it on with a plasterer's tool (a trowel, with the handle bent backward over the blade), sprinkle the brick-work before it is applied, and the plaster occasionally when it gets sticky and difficult to work; make the surface as even as possible, squaring out the corners, and covering every part accurately. If you intend to finish with a finer coat, you

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Light Green, by adding verdigris, or by mixing blue and yellow.
Green, by mixing blue and yellow.
Light Red, by mixing white-wash and vermilion.
Dull Red, by mixing white and Venetian red.
Drab, by mixing white-wash and raw sienna.
Pink, by mixing white and rose pink.
Stone, by mixing white and litharge.

The washes must be laid on very thin, and flat brushes ... for the purpose, but a large painting brush may be ... You must finish by drawing the brush in the same ... so as to leave as few marks as possible; in wash- ... that has been done before, the old colour must be ... washed off before the new wash is put on. After ... has been properly washed, you may give it an ... finish by stencilling. This is very easy, and ... common ingenuity may make the patterns. ... is the method of doing it: procure a sheet of ... thin hard wood, and in it cut any pattern ... fancy; lay this flat upon the wall, and ... stices in it (which form the pattern) with ... you may choose; then move the stencil ... ing on in this manner till you have ... it be performed tolerably well, an imi- ... produced. The colour used for the ... d with more size than the ground. ... this kind you should wear a paper ... head, as the washes will spurt ... to get off.

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must score the first with the edge of a trowel to form a rough surface, this will make the second coat adhere better. The plaster for the second coat may be made in the following manner: Mix one part of freshly slaked lime, and two parts of fine, sifted, loamy sand, with a sufficient quantity of water, to bring it to a proper consistence.*

Apply this in the same manner as the first, taking care to make the surface very smooth, and squaring out the corners, and trimming off the edges very accurately. When you want to plaster over wood-work, nail lathes close together to the battens, so as to form an even surface; if you have not lathes, straight rods of any kind of hard wood may be dried and split, and will do nearly as well, but will certainly be rather more troublesome to manage. Work the plaster well in between the lathes, or rods, which will prevent its coming off, and smooth the surface, as in working upon brick-work.

Having plastered your work, your next business is to wash, or paint it; to prepare for either it must be first washed with strong size; if you cannot procure this ready made, you may perhaps be able either to make it, or a substitute for it, yourself. See Recipes.

White-wash is made by mixing whitening with hot water, to the consistence of cream, and adding a sufficient quantity of size, or potato size, to make it adhere; adding a little lamp black.

Lime-wash, by mixing freshly-slaked lime with boiling water to the consistence of cream.

Yellow-wash, by adding yellow-ochre to white-wash, or by using the ochre instead of whitening, according to the depth of colour required.

Blue, by adding indigo to white-wash.

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* If you are plastering upon brick-work, you may make a guide for your work in the following manner:—Get a piece of board three or four inches broad, and as thick as you wish your plaster to be; fix this by means of a nail, at each end, to the wall, and bring the plaster even with its surface, when you have done, two or three feet wide; remove it, and go on in the same manner till you have finished; the last piece you have done will serve as a guide on one side, and the board on the other.

Light Green, by adding verdigris, or by mixing blue and yellow.
Green, by mixing blue and yellow.
Light Red, by mixing white-wash and vermilion.
Dull Red, by mixing white and Venetian red.
Drab, by mixing white-wash and raw sienna.
Pink, by mixing white and rose pink.
Salmon, by mixing white and litharge.

These washes must be laid on very thin, and flat brushes are made for the purpose, but a large painting brush may be used. You must finish by drawing the brush in the same direction, so as to leave as few marks as possible; in washing work that has been done before, the old colour must be thoroughly washed off before the new wash is put on. After your work has been properly washed, you may give it an appearance of finish by stencilling. This is very easy, and any person of common ingenuity may make the patterns. The following is the method of doing it: procure a sheet of vellum, or very thin hard wood, and in it cut any pattern that may suit your fancy; lay this flat upon the wall, and wash over the interstices in it (which form the pattern) with any coloured wash you may choose; then move the stencil and do the same, going on in this manner till you have covered the wall. If it be performed tolerably well, an imitation of papering will be produced. The colour used for the pattern should be mixed with more size than the ground. When doing anything of this kind you should wear a paper cap, or something over the head, as the washes will spurt about, and are very difficult to get off.

PAINTING.

The principal difficulty in painting is mixing the colours; and this, when particular shades are required, can only be overcome by practice. Colours of this description are, however, rarely absolutely necessary, and are seldom used except in ornamental work. Such as will answer all the useful purposes of painting are easily mixed, and as easily managed.

The object of painting is twofold: to preserve iron-wood &c. from the action of the atmospheric air, and to add to the neatness and beauty of its appearance. When the first object only is of consequence, it may be answered in a cheaper manner by using pitch, which is frequently substituted for paint, at least in out-door work.

The tools and implements required for painting are brushes, tin cans, a putty knife, and a palette knife; the materials, colours, linseed oil, boiled oil, turpentine, driers, litharge, and putty.

The base of almost all the light colours, such as white, drabs, stone colour, light browns, pinks, &c., is white lead. Lamp-black, mixed with different oils, forms black paint; the best greens are all mineral colours, and may be purchased of all shades; reds are made of red lead, venetian red, and vermilion; browns, spanish brown, venetian brown, and purple brown, burnt and raw sienna, burnt umber, and bister; purple is prepared with indigo; yellows, of yellow ochre, king's yellow, and patent yellow; light green, of verdigris. All these may be procured ready ground in oil; and by their various combinations you may obtain any colour or shade required. Many of these colours are mineral poisons, and capable of absorption by the skin. This is more particularly the case with white lead, which is a sedative poison of so deleterious a nature, that you seldom see a working painter who has been many years in the business, with the perfect use of his limbs, particularly of the arms and hands, or who has not been, at one time or other, a victim to painter's colic. Be very careful, therefore, to keep the handles of your brushes quite clean, and to wash your hands if you leave off painting even for a short time.

To prepare wood for painting, the knots are first done over with a mixture of size and litharge, put on quite hot; and when this is dry, your work is ready for its first coat or priming.

Before, however, I go further, it may be as well to say something of the method of using the brush,—use as large a brush as the nature of the work will allow, and work the paint well into the wood, finishing each coat by drawing the brush lightly over the paint in the same direction, so that there may be as little mark as possible. All this requires a little management, but is soon acquired by practice.

PRIMING.—This consists in painting the work over with a thin coat of paint, made by mixing equal parts of linseed and boiled oil, with a sufficient quantity of white lead to bring it to the consistence of cream, and then adding as much litharge as will give it a light salmon colour. This must be laid on very even and thin, but must be made to cover every part.

The colour of your next coat must depend upon the ultimate colour; if that is to be white, or any light colour, this may be white, or white with a shade of the colour you intend to finish with; for white, it is usual to mix as much litharge with it as will give it a slight tinge of pink. But if the last coat is to be green or a dark brown, this may be of slate. Mix the paint for this coat in the following manner: about two parts of linseed oil, one part of boiled oil, and one part of turps, with some driers, and a sufficient quantity of white lead, to make it of such a consistence as will just paint easily; and either a little litharge or lamp-black, as you want either a pink or slate colour.

The next coat may be precisely the same.

In mixing your colour for your last coat, you must take care to make a sufficient quantity at once, or you will scarcely match the exact shade even in white; you must mix the oils in different proportions according to the appearance you wish your work to have; if you wish it to have a gloss, you may use the same proportions of the different oils as for the two last coats; but if you wish it to be without gloss, and resemble what is called flatting, you must use one part of linseed oil, one part of drying oil, and three parts of turps.

In laying on this coat, you must be particularly careful to give the last finish with great delicacy and lightness.

Flatting consists in laying on a coat of paint mixed with turpentine alone; it is used in finishing fine work, but it requires to be done so quickly, and is so difficult to manage, that few but professional painters can attempt it with any chance of success.

It would be ridiculous for an emigrant to take out a greater variety of colours than he is likely to require; and this he can determine in England as well as when he gets to his destination. I will, therefore, give a list of those in common use, from which he can make a selection.

White.—White-lead, ground in oil, 30*s.* per cwt.
Black.—Lamp-black, in powder, 6*d.* per lb.
Blue.—Indigo.
Yellow.—Ochre, king's, patent.
Browns.—Spanish, Venetian, purple—cheap colours.
Raw umber, burnt umber, raw sienna, burnt sienna, Bistre—dear colours.
Greens.—Patent, mineral, verdigris.
Reds.—Vermilion, Venetian red (R. Brown).

COMPOUND COLOURS.

Stone colour.—White-lead, ochre, raw umber.
Drab.—White, raw umber, and burnt sienna.
Light Red.—White, vermilion.
Slate.—White and black.
Salmon.—White, litharge, vermilion.

Having determined your colour, your next object will be to obtain oils and other requisites for painting, of which you had better take out a full quantity. The quantities you will require will, of course, depend upon the extent of surface you have to cover—six square yards of new work will require for three coats, besides the priming, one pound of lead, half a pound of linseed oil, quarter of a pound of boiled oil, and half a pound of turpentine.

You had better have your driers ground in oil.

The number of brushes you are likely to want will depend upon the extent of surface you have to cover; you had, at

all events, better have two or three of a sort, particularly of what are called sash tools. Buy them of the very best kind, and if you find the hairs grow loose from the heat, put them into water for a short time, and it will tighten them.

In mixing colour, first add the linseed oil to the ground colour, very gradually mixing them intimately together, then the boiled oil, driers, and turpentine; let your colour be well mixed together, but do not prepare them long before you intend to paint, as they become what the painters call fatty by keeping.

Add a little black or blue to white paint, or it will turn of a disagreeable yellow. Take care to mix the black thoroughly.

In mixing compound colours, mix the body colour first, and then add the others.

Mix at once as much colour as you are likely to use in a day.

When using compound colours, take care to stir them frequently, or your painting will be of different shades.

If you leave off, even for a short time, cover your paint over, that the turpentine may evaporate as little as possible.

Take care to keep the handles of your brushes clean, and wash yourself thoroughly when you leave off.

A cheaper kind of paint is sold for outside work, and it answers the purpose sufficiently well for common purposes. It may be bought at any of the colour shops, but the best place to purchase it is of the patentee.

In painting wood that has been painted before, you must first rub off all lumps and inequalities by means of pumice stone, or, if you cannot procure that, glass or sand paper. If you want to remove old paint altogether, sponge it over with oil of tartar, which will soon destroy it.

GLAZIER.

Tools.—Diamond pencil, straight rule, striking knife, putty knife.

MATERIAL.—Putty and glass. Putty is made by working whitening and linseed oil well together. Do not forget to take out panes of glass the size of your windows.

GLAZING.—If the frame has been glazed before, you must clear out every particle of glass and putty by means of the striking knife and a hammer. Then select a piece of glass as nearly the size of your frame as possible, and cut one of the sides and one of the ends quite even, and square with the diamond pencil; fit it, and mark the exact size of the frame; take off the superfluous glass by laying the straight rule upon it at the proper mark, and drawing the diamond pencil along its edge. In using the diamond, hold it perpendicular, by a depression in its handle, between the finger and thumb, and if it cuts you will feel it draw against the hand, and a sort of creaking noise will be made; you then break off the glass by bending it from the side cut. Having cut your glass to fit accurately, but easily, put a layer of putty round the frame, and press the pane firmly but carefully upon it, then with the putty knife put another layer round the edge of the glass, and close to the frame, so as to form an angle with its edge, to which it must be neatly trimmed off; you then draw the knife round the inside of the glass, and flat to the frame, to remove any extraneous putty that may have been pressed out.

If you live at a distance from a settlement, you will find the power of putting in your own windows no mean addition to your comforts, and one that will soon compensate for laying out a small amount in what may be considered dead stock. In a colony like South Australia, for instance, the putting in a pane of glass is a matter of no contemptible expense, even at Adelaide, but it would be infinitely increased if you lived in the *country*, where you would have to pay enormously both for time and material.

In glazing sashes for the first time, you will not, of course, have to cut out the old putty.

Should you want a garden frame, or anything of that kind, you will find the advantage of being able to use carpenters' and glaziers' tools. You may easily make the box and frame by attending to the directions given under the head Carpenter, and the glazing is very simple, the glasses being merely cut to the proper width, and scaled over each other in the same manner as slates and tiles are placed, securing them with putty.

PAPER-HANGING.

THERE is so little art in paper-hanging, that, as far as regards all useful purposes, any one may do it. The ornamental papers of highly finished drawing-rooms certainly require such skill and taste that few, even among the regular artisans, are capable of managing them; with these, however, we have nothing to do. That papering adds considerably to the snugness and comfort of a room, there can be no doubt; and as, if you do the work yourself, it is by no means expensive, it may be worth while to give a few hints upon the subject.

You will require paper, paste, a brush, a straight piece of lath to measure, and a table to paste upon, a pair of steps, and a pair of large scissors. The objects to be kept in view are, to cut the paper so that the pattern may match exactly, and to lay it on, so that there may be no folds or creases.

I will suppose you work from the left hand: first measure the exact height of the room, and cut a length of paper to the exact measure; and if you do not intend to put a border, you must cut off the left edge; before you paste this you had better cut off another length: if it does not happen to match, you must cut off sufficient to make it do so before you measure it. You now paste the first piece, and while that is soaking cut off the left edge of the second, and measure off a third; now put up the first piece. Get upon something

sufficiently high to give you perfect command, and holding the strip by the left corners, adjust it accurately along the edge, and then regularly lay it down to the right, dabbing it down with a dry cloth, and rubbing out any air-bubbles or creases, which must, however, be done very gently. You proceed in the same manner with the next strip, laying the edge over the selvedge of the first, so that the pattern may exactly meet and match. In cutting the paper to fit any awkward-shaped places, you must take care that the pattern is continuous.

Having put up your paper, your next business is the border. In doing this you adjust the corners by cutting the paper off diagonally to match. It is easier to put up a paper with a border than without; as in the latter case there is considerable difficulty in managing the edge with sufficient accuracy.

One of the principal things to be attended to in paper-hanging is, to have good paste; if it is in the least state of fermentation, the air will extravasate between the paper and the wall, and you will never make it lie smooth; while if it be too thick it will not penetrate the paper, and it will be constantly peeling off; and if too thin, it will not adhere at all. The best way to make good paste is, to mix flour and cold water to the consistence of thin cream; simmer it over the fire, stirring it continually, and just before it boils add a quarter of an ounce of powdered rosin to every quart of paste, and, if you want it to keep, twenty grains of powdered camphor.

If you cannot procure proper paper, and have a few old newspapers not damaged, you may set your ingenuity to work to make a substitute. First stain the paper with some ground colour to hide the printing, and then make a pattern, as described under the head Washing and Plastering, and paint it with any of the following colours you can procure. The juice of the blue iris evaporated to the thickness of cream, and mixed with gum-water, will form a blue; the juice of the

buckthorn berry prepared in the same manner, sap green; gamboge, or the pistils of the crocus, boiled in water and evaporated, a yellow; a red you will not be able to substitute, unless you can procure the insect coccinella; a black may be made by catching the smoke of burning oil or candles. With these colours, used with taste, you may make a very pretty, if not a first-rate paper. I once saw a room papered with the common blue paper off sugar-loaves, and covered (partly) with little common etchings and plates; and it was by no means a contemptible affair.

It may be thought unnecessary, if not ridiculous, to introduce this subject into a volume intended principally for the use of the emigrant; but when it is considered how much such an addition to the appearance of a room may add to his pleasant feelings, by making his home resemble that of his youth, the omission could scarcely be excused.

PLUMBING.

You will not, in all probability, have frequent occasion to put this branch of the arts into requisition, but if you do take out leaden piping, you may find it convenient to have the power of mending or joining it. The tools necessary to do this may be used for other purposes, such as mending saucepans, coppers, and other vessels. They consist of a small and large iron ladle, a scraper, two searing irons, a file and rasp, some solder, and a small quantity of borax.

I think there can be scarcely any person who has not watched the common operations of plumbing, which a few specific directions will bring to his recollection, and enable him to perform with tolerable facility.

Soldering, in which the jobbing work of the plumber principally consists, is performed in the following manner:—suppose, for instance, two leaden pipes are to be joined, the end of the upper one is scraped off with the triangular scraper to the shape of a cone, or rather conically, and the end of the

other enlarged by means of the same instrument, and by driving a round wedge into it. In this manner they are made to fit. The upper one being inserted, a little borax is put on the joint, and then some solder, previously melted, run over it, and smoothed down in the shape of a long barrel with the searing irons, being prevented from falling about by holding a pad of damp linen under and close to the pipe. A hole in a pipe may be mended in the same manner, except that less solder will be required.

Holes in tin saucepans and other vessels may be mended by soldering a piece of tin over them, but in this case a harder kind of metal is used.

There is scarcely any operation of this kind that an ingenious person may not do, and, after a little practice, in a workman-like manner, and it is astonishing how much these capabilities conduce to the comfort and convenience of an emigrant. I am not particularly ingenious, and yet I have more than once mended leaden piping without any other tools than an iron spoon for a ladle, and an italian-iron for a searing iron.

MISCELLANEOUS REPAIRS, &c.

There will always be a certain set of miscellaneous repairs and alterations, on the performance of which your domestic comfort will be dependent. It will be well, therefore, that you should have tools adapted to these purposes, though those belonging to the different arts already spoken of may be made available for many of them. I will suggest the following list of tools, which may be selected from, according to inclination and means.

A bow, and set of drills
Two or three cutting punches
A portable anvil
Wax ends and bristles
Gun-lock vice
A pair of pliers
A pair of wire nippers
Two bell-hangers' gimlets
A blow pipe
A portable furnace
Flat, three-cornered, and round files
Iron and copper wire
Shoemakers' awls
Harness do.
Harness-makers' needles

You will find these tools useful on a great many occasions, and for a variety of purposes. The bow and drills to bore holes in iron or stone; the punches to punch holes in harness or other leather; bell-hangers' gimlets to bore through thick wood or brick-work; the pliers will be available not only to twist or straighten wire, but to hold any small piece of iron you wish to work upon; the vice for the same purposes on a larger scale, and the anvil to do any small kind of iron-work. With these tools you may do many little jobs, for which you would have to employ a workman.

The cost of such a set of tools as I have described will be considerable, but, if the emigrant can afford the first outlay, he will be more than compensated by increased convenience and comfort, and by the ultimate saving of expense.

BLACKSMITH.

Some of the smaller jobs in iron-work may be managed with a common fire, and by means of a portable anvil and tools mentioned under the head Miscellaneous, but if you have a large establishment, carts, horses, agricultural implements, &c., you will find it more advantageous to have a regular shop fitted up, and keep a blacksmith, who can do agricultural work when not employed at the forge. It would be a great expense, and occasionally might be a sacrifice of valuable time, to send twenty, or perhaps forty miles, to get a cart repaired, or a horse shod; so that, even though it may not be worth your while to keep a blacksmith, you will find it eventually cheaper to have a forge fitted up and send for a workman, when you have a collection of jobs, than to send the jobs to be done. Besides, though you may not be able to perform the more difficult operations of the smithy, there are many that you may learn to do, and save considerably in pounds, shillings, and pence; for the outlay even of pence and shillings often repeated, would soon amount to the

expense of your forge, which, as the common people say, eats nothing.

Many pieces of old iron that would otherwise be wasted, may be converted to use. A spade or shovel is broken, you bring the parts to a white heat and weld them together. Now if they were put by for mending, the chances are that one or both would be lost, and you must buy a new tool. A wheel tire is wanted; nothing is easier than making one: you require a few large nails, heat a piece of rod iron, lengthen it out, and bring it to a point, and cut the length off with a wedge; heat it again and form the head. You will be astonished at the facility you will acquire in doing these things. You may even keep shoes ready made, and shoe your own horses. It is true that you might purchase these things cheaper than you could make them, but you may not be *able* to purchase them, and probably will not without sending miles, so that they would be tolerably expensive in the end. One thing I have omitted, that you need not have a building devoted to a forge only, but have it placed at the end of one that will serve for the trades generally.

The tools &c. that you will require are the following:—

A pair of double bellows.
A forge.
A fixed anvil, three or four hammers, and a set of wedges and punches, and tongs.
A fixed vice.
Rod iron, bar iron.

COOPERING.

The extent of your operations in this art will probably be confined to the taking out and putting in the heads of casks. It may happen, however, if you are tolerably ingenious, that you may wish to do more than this, and occasionally put in a new stave, or put on a new hoop, and this you may very easily do by making them match the old ones. The tools you

will require, in addition to those used by the carpenter and included in his list, consist of a two-handled shave, and a cooper's hammer.

When you wish to take out the head of a cask, you have nothing to do but to loosen the hoops by striking them towards the top with the edge of the hammer, going gradually round the vessel again and again, so as not to stretch the hoop; and when you have put the head in again, the task is quite as simple, it consists merely in knocking it down, instead of up, in the same regular manner.

CHAPTER III.

Bread Baking, &c.—Dairy Butter.—Dairy Cheese.—Malt.—Candles.—Pickling, Salting, and Curing.—Trussing.—Preparing and Cooking.—Game and Poultry, &c.

UNDER this head I shall include, not only wheaten bread made with all the advantages of flour, yeast, and a regular oven, but such things as may be substituted for it, where these cannot be commanded. I shall give the most simple directions only, for making bread, as the emigrant cannot be expected to have all the resources of a London baker.

Bread is of all kinds of food the most important to mankind in a state of civilisation: not only much of their comfort, but health, depends upon its being of the best and purest kind. The most *wholesome* bread is that made with flour from which the bran has not been separated: the most unwholesome, that prepared in the most elaborate manner. The bran not only renders the bread easier of digestion, by separating the nutritious parts and subjecting them more universally to the action of the stomach, but at the same time acts as a gentle laxative, perhaps from this very circumstance, and keeps the bowels in a proper state of action. There is another advantage in using flour of this kind, and by no means an unimportant one in a colony,—that it may be procured with less trouble and expense than where it has to undergo the various siftings and boltings to which fine flour is subjected.

Bread is generally made of wheaten flour; but rye, barley, and oatmeal, are occasionally mixed with, or substituted for it, and agree with some people better than the more expen-

tive grain. The occasional use of either of these may be advantageous; but, if continued beyond a certain time, they are apt to produce heat and feverishness, and occasionally diseases of the skin. In times of scarcity, other things have been used as substitutes, but it always suffers from adulteration, no other kind of vegetable production answering altogether the same purposes.

Unless you bake on a large scale, the utensils in use for other domestic purposes will be sufficient; but if your family and wants are large, you had better have a proper trough with a cover, and a peel to put your bread in and take it out of the oven.

As you may not be able to obtain yeast at all times, it is as well to be prepared with the means of making a substitute for it,—this is leaven; which, although not so efficient, is by no means a contemptible one. The following will keep a considerable time: boil three ounces of hops in a pail of water down to a quart, strain and stir into it, while hot, a quart of rye flour; when cold add half-a-pint of good yeast, and sufficient flour to form it into a thick paste, roll it out flat, and expose it to the sun and air to dry. A piece of this cake about two inches square, dissolved in warm water, will be sufficient for a large loaf of bread. For making leaven, yeast, &c., see Recipes.

To make good bread you must have good flour, pure water, and fresh yeast or leaven; and though a proportion of potatoes may be used, the best and most satisfying bread is that made with flour alone.

It is impossible to give such particular directions for bread making, but that something must be left to the discretion of the operator, but if you keep in mind the objects to be obtained you will scarcely fail of success. Your first object is to mix your ingredients in proper proportions; your next, to produce such a degree of fermentation as will make the dough light and wholesome; and the last, to con-

vert it into bread by baking. The fermentation is produced by means of yeast and a certain degree of warmth; if, however, too great a degree of heat be employed, or the sponge remain too long, it may run into the next stage of fermentation, the acetous, and the bread become sour and unfit for use. As soon, then, as the fermentation has arrived at a proper stage, it is stopped by baking, which converts the dough into bread.

Mix as much yeast as you require with pure soft water, and stir it well till it becomes of a brown colour, and begins to curdle, and then strain it; mix this with flour till you have formed a paste of tolerable consistence, and knead it well together, then put it into a pan or trough and cover it up; if the weather be cool place it in a warm, but if hot, in a cool place, and let it remain till it rises. You then knead it up with some salt and water, and a sufficient quantity of flour to make it of a firm consistence, mixing it intimately and kneading it well together. If your oven be nearly ready, you may at once make it into loaves, if it is not, it may be again covered up and left till within twenty minutes of its being so, and then made into loaves; when they begin to crack they are ready for baking.

If you suspect, from the sponge rising very high (and if you make it over-night this is likely to be the case), that it has passed the proper stage of fermentation, taste it, and if it be at all acid, dissolve a little pearlash, carbonate of soda, or ammonia, in a little water, and mix with your flour when you knead your bread. If it has not risen sufficiently add a little more yeast, and put it into a warm place for a short time.

A quarter of a pint of good yeast is sufficient for a peck of flour, and the sponge should be so thick that it will just pour. If your sponge looks frothy your bread is likely to be good.

If you have a brick oven heated with wood, you must remember that heavy and large wood gives out the greatest heat, and that less will be required; for a common-sized

family oven, an hour and a half, with a good fire, will heat it sufficiently for household bread, but if white bread is to be baked, three quarters of that time will be sufficient. It is impossible, however, to give any fixed rule for this; ovens of the same size and construction have such very different powers of acquiring and retaining heat, that the most expert baker can only judge of the powers of the particular oven he is using by experience. If some flour, thrown in for a few minutes, becomes of a light brown, the oven is of a proper heat; but if it is burnt, it is too hot. You now clean out your oven and place your loaves in it; common-sized loaves of household bread will require from one hour and a quarter to an hour and a half, of white bread not more than an hour.

Instead of proceeding in this manner, some people knead their bread together over-night, and leave it to rise by the morning. This is certainly not so good a way, though it may save a little trouble.

Rice Bread.—Boil a pint of rice soft, and add a pint of leaven; then three quarts of the flour: put it to rise in a tin or earthen vessel till it has risen sufficiently, and divide it into three parts, and bake it as other bread.

Oat Cakes and Muffins.—Put a quarter of a pint of yeast into some water; let it remain all night; pour off this water, and add three pints just warm and a little salt: stir these well together, and strain. Mix this with three-quarters of a peck of white oaten flour: knead it up, and put it in a trough, covered up in a warm place, to rise. Then pull it into pieces about the size of a double walnut; roll them into balls, and place upon a table—laying a piece of flannel upon them, and keeping the dough covered with flannel. When you have rolled the last, those first made will be spread out, and of a proper form for baking, which you do by laying them either upon a flat iron stove for the purpose, or on a griddle over a common fire: when they are brown on one side, turn them on the other.

Tortillas—are made by beating Indian corn in water on a sloping stone or wide board till it is mashed up. It is then rolled up into balls and flattened. They are toasted on both sides, or baked upon an earthen or iron plate. A few minutes will do them, and they are eaten with or without butter.

Passover Bread.—A thin cake made of flour and water may

be made a substitute for bread when you cannot procure yeast or barm. They may be made of wheaten, oaten, rye, or barley flour. They should not be thicker than a penny-piece, and require very little baking to do thoroughly, either in an oven or on an iron plate.

Biscuit Cakes.—Beat four eggs for half an hour; then add a pound of sugar, and the rind of a lemon grated: whisk it till it be light, and then add half a pint of milk, and again mix them well. Add a sufficient quantity of flour to make a stiff paste; roll it out flat; cut it into biscuits, prick them over, and bake in a slow oven.

Gingerbread Cakes.—Three pounds of flour, one pound of sugar, and one pound of butter, two ounces of powdered ginger, and a nutmeg grated: then warm a pound of treacle and half a pint of milk together. Make up the bread stiff; roll it out thin, and cut it into cakes, and bake them on tin plates in a slack oven.

Yeast.—Boil a pint of malt and a handful of hops in two quarts of water for fifteen minutes; strain it and boil it again, and thicken it with half a pint of rye, and a little molasses: boil a few minutes: take it off, and, when nearly cold, add a teacupful of good yeast.

You should keep your yeast in bottles slightly corked, and if you find that it has become sour, add a little salt of tartar to it.

Milk Yeast.—Stir a large spoonful of flour and a teaspoonf of salt into a pint of new milk, and set it so near the fire that it may be luke-warm. In an hour it will be fit for use; though it requires double the quantity to be used, must be used immediately, and though the bread dries sooner than when made of other yeast, yet as it may be obtainable where no other is, it is well worth a trial.

Potatoes.—Yeast.—Almost any farinaceous vegetable will make yeast, so long as you have a small portion to set it working; so that if you have even a tablespoonful, you may make any quantity.

DAIRY.

The size of your dairy must of course depend upon the number of cows you keep, and the purpose to which you intend to apply their produce. If you make butter and cheese, you will require more room than if you make butter only. It will be as well, however, to allow for an increase of stock, and have your dairy larger than necessary for your present

wants. It should be built of bricks, clay, or stone, in preference to wood, as the thicker the walls, the less will the interior be affected by changes in the atmosphere; while bricks, &c., are not so accessible to reptiles, &c., as wood. Two or three apertures must be left to admit air, and these may be fitted with fine iron net-work or perforated zinc; having shutters made to close very accurately. If possible, have a pavement of stone, brick, or paving tiles, and let the interior be finished off as neatly as circumstances will allow. Let there be shelves three feet wide along two of the sides, about three feet two inches high; and others two feet wide, a foot and a half above them. The utensils you require are a churn. There are several kinds of these: the common or upright churn, which consists of a tub smaller at the top than the bottom, having a cover, through a hole in the centre of which, a pole, with a rack attached to the lower end of it, is passed. Churning is performed by raising and lowering this pole, giving it at the same time a kind of spiral motion.

The second kind consists of a box, in which a small wooden wheel, resembling a water-wheel, is made to revolve by means of a winch on the outside.

The third is the barrel churn. This consists of a barrel made to revolve upon an axle by means of a winch. Of these I think the second kind is the best, particularly for the use of persons living at a distance from a town, as it is less likely to be out of repair than the others, and easier to mend when it is so; at the same time, by moving the winch rapidly, the cream may be agitated more effectually than in either of the others; both requiring considerable labour to work. Those, however, who are accustomed to the old-fashioned upright churn, will not feel disposed to part with their old friend. The next thing required, if you make cheese, is a cheese press; for I will speak of the larger and more expensive articles first. There are a variety of these, more or less costly. That of the plainest and easiest construction will

be best for colonial use; indeed, if your operations are only on a small scale, you may easily make one for yourself, in the following manner: make a strong box of hard wood, with holes all round (near the bottom); make a strong lid to fit accurately, but easily into this, and procure a bar of very strong wood or iron, and two or three blocks of different heights. This box must stand upon some firm support, and near a wall or strong post, in which a tolerable deep mortise must be made to receive the end of the pole or lever.

When you use the press, put your cheeses into it, cover them with a cloth, and put on the lid; then put a block, a little higher than the edges of the box, upon it, and insert the end of the lever into the wall; bring it over the block, and by making pressure on the end you will produce all the effect of a very strong press; when the block has sunk even with the edge of the box put a higher one on, and proceed in the same manner; and when you want to leave your cheeses under the press, hang weights to the end of the lever. A press of this kind, if you have the wood, will cost you literally nothing, as the box may be mortised together and secured with a few brads.

Pails to receive the milk should have wooden hoops, and will cost about 4*s*. 6*s*. each.

Strainers.—You will find it the cheapest plan to have these made of zinc; they are, perhaps, more expensive at first, but are easily kept clean, and never wear out.

Milk-pans.—These are large flat pans, glazed inside; you will require them in proportion to the number of cows and the nature of your manufacture. It will be an expense, but, eventually, economical, to have a set of iron-wire covers for these and your cream jar, as they will protect the contents from insects, without keeping out the air.

Cream Pan.—A pan glazed inside, of a size proportioned to your dairy.

Skimmers.—You will find it advantageous to have these

made of zinc, as they are scarcely dearer than tin, and last infinitely longer.

BUTTER.—Directly your milk is brought to the dairy, let it be strained to free it from the hairs and other impurities: then put such as you intend to set for cream into your milk pans—where it is to remain twelve or fourteen hours. At the end of that time, skim off the cream and put it into a jar; and if you do not intend to skim a second time, which is seldom worth while, immediately empty the pans, and let them be *scalded* out immediately, and if the weather is very hot, rinsed with a solution of soda, and then well washed with cold water.

Having, from successive skimmings, procured a sufficient quantity of cream to churn, or kept it as long as you can with safety, get your churn ready, take care that it is quite clean and dry; and having put in your cream, agitate it till the butter separates. It will first appear in small particles; these will gradually join together, till at last your butter is formed in lumps. Take out your butter, and *immediately* free it from the buttermilk by working it up on a marble slab, if you have one; if not, on one of hard, cool wood. When you have separated all the buttermilk, put your butter into cold spring water, and let it stay a short time: then take it out, press out the moisture, and add a sufficient quantity of salt: pack it close down in a jar or cask. Such as you may intend to use fresh, will not require to be subjected to the latter part of the operation, but, when quite freed from the buttermilk, may be made up into rolls and covered with a cloth. I have forgotten to mention a very essential implement—a pair of butter pats. These are flat, wide knives—generally made of wood; and you prevent their adhering to the butter by occasionally dipping them into water.

The time necessary to produce butter will depend upon several circumstances—the state of the weather, the richness of the cream, &c. &c., and upon the continuity of your operations. So easily is butter separated under certain circumstances, that I once took a bottle half filled with cream from Richmond to London, and the motion of the gig converted it into butter.

Butter is a concrete animal oil; and, like all other oils, will soon become unfit for use if mixed with water, or exposed to heat above a certain temperature. It is therefore necessary to free it perfectly from moisture, to impregnate it with salt, and to keep it in a cool place, guarded from the air.

CHEESE.—Cheese is simply the dried curd of milk. It is prepared in a variety of ways; and its peculiarity of taste depends on this, as much as on the richness of the milk, and the food of the cows that produce it. Some kinds of cheese are made of new milk, others of skimmed; and some again have a proportion of

cream added. In making what is called Dutch cheese, the curd is said to be separated by means of muriatic acid. This not only prevents its decay, but keeps it from the inroads of insects. The theory of making cheese is simply this:—The curd is separated from the whey—generally by means of rennet (a liquid prepared from the stomach of the calf). It is then broken up into small pieces, and freed from moisture, either by means of a press, or by placing it under heavy weights. Most cheeses, however, are more or less coloured; and this is effected by means of anotta—a substance harmless in itself, but frequently rendered deleterious from being mixed with red lead, to add to its weight and increase its colour. It must be remembered that colour is by no means necessary to form good cheese. Might not cochineal, or some other innocent substance less liable to adulteration, be used with advantage!

To make cheese, then, add a sufficient quantity of rennet to the milk to make what is called curds and whey. Strain off the whey, and break up the curd into one homogeneous mass. Mix in a sufficient quantity of salt, and put the mass on reeds or rushes, wicker-work or piece of basket-work (interposing a cloth), to drain. When sufficiently drained, mix in your anotta dissolved in water (if you choose to employ this colouring matter); and again mix up the curd, so that the mass may be of one uniform colour. Then form it into cheeses of the size and shape you wish; subject them to the action of the cheese-press—under which they may remain ten or twelve days. They are then taken out, and are put by for sale or use.

As before observed, the richness of cheese depends upon the milk used. Some of the Suffolk cheeses that are made of skim-milk are so hard, that the farmers' men cut them into pegs, and they will bear driving into a hole in a barn door.

The refuse of the dairy need not be thrown away: the skim milk may be used for puddings, children's food, and for a variety of domestic purposes; it also forms an excellent addition to the rations of the pig-stye.

Butter-milk—Is a cooling and wholesome drink; and is, with some people, a favourite addition to their food. The Irish poor live almost exclusively on that and potatoes; and pigs eat it with avidity.

MALT.

All grain possesses the saccharine principle, or in plain terms contains more or less sugar; and this is increased by

subjecting it to the action of moisture till it begins to grow, and then checking the germination by drying.

You will not have the appliances of a malting house, and will in all probability be obliged to exert your ingenuity to form substitutes.

Malt is generally made of barley; wheat and rye are occasionally used, but the flavour and qualities of the beer made from these are very different from that brewed with barley malt.

Damp your barley thoroughly, and put it in a heap in a tolerably warm place; let it lie till it begins to grow, that is, till the spur begins to appear, and then spread it out to dry. When the external surface is free from moisture, let it be placed on a warm brick floor, gradually increasing the heat, and constantly turning the grain till it becomes quite crisp. You then allow it to cool, and when cool grind it.

This is the process of malting, and contains all the directions that are necessary: it would be totally useless, and only tend to confusion, to be more specific. The time the grain will take to germinate and to dry depends entirely on circumstances; if you watch it carefully you will soon learn the periods at which to stop the different stages of the process.

It need scarcely be observed that the more quickly you dry grain, and the greater heat you use, the browner and more crisp will be your malt. Grain prepared in this manner is called high-dried malt. If you expose it to a less, and longer-continued heat, you produce pale malt.

It may be impossible to obtain either malt or the means to make it; in this case, if you are determined to have beer, you may attempt to make it with sugar,—and I have once or twice drunk excellent beer, into the composition of which neither malt nor hops entered. The sugar is mashed in the same manner as malt, in the proportion of sixteen pounds to the gallon of water, and then boiled with hops, and fermented in the same manner as other beer.

SUBSTITUTES FOR HOPS.—It may be impossible to obtain hops,—they may be dreadfully dear, or you may not be able to buy so many as you want; in this case it may be as well to be provided with a substitute, and quassia wood is generally used for this purpose.

Quassia wood is intensely bitter, gives out its bitter principle freely to water, and is, in some respects, more wholesome than the hop; but the bitter is of a more medicinal taste and has not the flavour so admired in the other, nor will beer made with quassia keep so long as that made with the hop. For strong and fine ales, intended for keeping, quassia must never be used; but for beer intended for quick consumption, it may be employed with advantage, if it is impossible to obtain the other. It must be remembered that one ounce of quassia is equal to a pound of hops.

CANDLES.

THOUGH it may not be always necessary to make your own candles, yet you may find it convenient to know how to do so; and it will be a means of using refuse and fat that would be thrown away. The apparatus necessary is of the most simple kind; indeed, to operate on a small scale, nothing more is required than a vessel to melt the fat, and a rod or two to suspend the cottons or rushes. You may, however, make your work easier by a little arrangement.

The best vessel to melt the fat in is a fixed copper, or a large oblong boiler (that can be placed upon a brick stove), of a size proportioned to the quantity of fat.

Make a frame, of the same size as your copper, of wood, one inch and a half or two inches square, and cut grooves in two of the sides about one inch and a half apart, and opposite each other. Procure as many rods as you require, and lay them across the frame, an end in each groove; fix a cord to each corner of the frame, and bring them together in the middle, so that it is exactly balanced; either fix these in

a loop, or fix an iron ring to them. If you cut pieces of cotton to double the length of your candles, and hang them about an inch and a half apart over the rods, so that both sides are equal, you are prepared to commence dipping. If, however, your frame be large, you had better use some mechanical means to prevent the necessity for your dipping it by hand; as, supposing it to be adapted to a copper one foot and a half in diameter, it will hold thirty-eight candles, which, together with its own weight, &c., will be more than you will be able to manage conveniently.

Screw a pulley into the ceiling, or a rafter exactly over your melting vessel, and another two or three feet distant; pass a cord over these pulleys, and fix a weight, sufficient to balance the frame filled with candles, at one end, and an iron hook to the other. If you hang the frame upon the hook and draw it down, the cottons will, of course, descend into the copper, and when you lift it up again the weight will keep it suspended. If you are likely to make many candles at a time, you had better have several frames, so that you may proceed in your operations without interruption.

Melt up any kind of hard fat suitable for your purpose, and strain it, while hot, through a horsehair or canvas bag; pressing out the fat, either by placing it under heavy weights, or by pressure with a wooden pestle. The refuse, which is sold under the name of graves, is excellent food for dogs. If your fat is very impure you had better strain it into water, and let it cool, when the impurities not separated by straining, will be found at the bottom of the cake, and may be cut off.

You now re-melt your fat, and when you are going to dip, hook a frame, ready loaded with cottons, upon the rope; damp your fire a little, and bring the frame down in such a manner that the cottons may sink gradually into the fat; let them remain to soak a moment or two, and raise the frame out of the copper. When the cottons have done dripping, dip them

again, and proceed in this manner till they are of the size required. You now take off the frame and hang it up to dry; hook on another, and proceed in the same manner. When the fat has sunk too low for the length of your cottons, you must either add fresh, and stir up your fire till it is melted, or use shorter cottons. Rush-lights are made in the same manner. The rushes being dried, three of the sides are stripped of bark, and instead of being put over the rods in equal lengths, they are looped to them.

If you have only a small quantity of fat it may be more convenient to make mould candles, as, in this manner, you may use all; and I question whether it may not be worth while to take out one proper candle mould. If you do this, there can be no difficulty in making the candles, as nothing more is necessary than to put a cotton into each of the tubes, and pour the fat into the mould. The manner of doing it, is this; the cottons are cut to double the length of the mould and folded exactly in the middle; the open ends are passed through the lower part of the tubes, and the upper, which form loops, are secured by wires, which run through them in rows. When the candles are quite cold they are taken out in the following manner: scrape off all the extraneous fat and cut off the loops; dip the mould into warm water,—invert it and unscrew the caps, and the candles will be easily removed. Both wax and tallow candles may be made in this manner.

SALTING AND CURING.

THE PIGS.

The pig is at least one of the most valuable of our domestic animals; it lives on food that others reject, and that would otherwise be wasted, while it affords at the same time substantial food for the poor, and an article of luxury to the rich. There is scarcely any part of this animal that may not be converted to some useful purpose. The carcase, head,

feet, liver, heart, kidneys, &c., are cooked either fresh or salted. Even the intestines of young pigs are, to some people, an article of luxury, while those of old ones form cases for sausages and black puddings, into which the blood is converted. The fat, melted into lard, is used in a variety of ways in cookery; while the bladder supplies a vessel to keep it in. The bristles are used as needles by the shoemaker and saddler; the hairs in hair plaster, and to stuff common mattresses; and the bones ground are a good dressing for land.

When the animal is killed at from six to ten weeks old, it is generally baked or roasted whole; from six to fourteen stone weight, they are adapted for salting, and when larger, for making bacon and ham. The legs, hands, belly, feet, and head, are the parts generally preferred for salting. When, however, the animal is large enough for bacon, the legs are generally cut off for hams, the sparerib cut out and eaten fresh, and the sides are salted whole.

PICKLED PORK.—Cut your pork into pieces to suit the size of your pan: rub them well with saltpetre, and then with equal parts of bay and common salt, or with common salt alone. Put a layer of salt at the bottom of your pan, and lay your pork upon it—packing it as closely as possible. Then fill all the spaces between the pieces with salt; and as it melts, add more. Cover it with a cloth. Put a board upon it; and place heavy weights upon it to keep it down. In this manner pork will keep for a year or two: but you must take care that it is covered with pickle; or occasionally turned and basted with the liquor—changing the situation of the pieces, so that those at the top may have their turn at the bottom, &c.

BACON.—Having killed a pig sufficiently large for this purpose, you cut off the head, legs, and chine, lay the side with the skin part downwards upon a flat table, and rub it with a mixture of one part of nitre and fifteen parts of common salt. Let it drain for two days, and then repeat the rubbing with fresh salt. Continue this for fourteen or fifteen days—occasionally turning it so that it may lie a fifth of the time on the other side. At the end of that time scrape it very clean—taking care to remove all the white froth. Then dry it well: rub it with some fresh dry salt, and hang it up away from a wall, where it may be exposed to the smoke of a wood fire, but not in a hot place: *or* you may, firstly, rub it with common salt, and lay it on a flat table to drain. In

two days scrape all the salt off, and put it into a shallow tray with the rind side downwards, and rub it with a mixture of one pound of common, one peck of bay salt, and four pounds of coarse sugar. When this has dissolved, baste the meat daily with the liquor for fourteen days. Then take it out, scrape and dry it, and hang it up as before directed.

If you have much bacon it will be well to have a bacon rack—which consists of a number of bars set in a frame and suspended from the ceiling by a rope at each corner, so as to be easily raised and lowered; and when up, out of the way of animals and vermin.

HAM.—For a fine leg of pork, mix three ounces of saltpetre one pound of sugar, and one pound and a half of common salt Rub your pork well with this, and let it lie in the pickle for a month—turning and basting it every day. At the end of that time take it out: dry it, and hang it in the smoke of a wood fire; *or*, rub your pork well with two ounces of nitre: then mix half a pound of bay, one pound of common salt, and half a pound of sugar, and two ounces of saltpetre. Rub this well in, and let your meat lie three days in the brine. Then boil half a pound of sugar and two pounds of common salt into a strong brine with water. Let it lie in this for three weeks—turning and basting it daily. Take it out: dry it; and hang it up in the smoke of a wood fire. Pigs' cheeks and tongues may be cured in the same manner. Hams are best kept in very dry bran. If you scald the bran, and thoroughly dry it, you will prevent the germs of any insects it may contain from quickening.

PORK SAUSAGES.—Chop four pounds of lean pork, and two pounds of beef suet, very fine. Mix a tablespoonful of powdered sweet herbs with the same quantity of sage, finely chopped: add one teaspoonful of ground pepper, and three of salt, and mix the whole well together. You may either put the sausage meat into skins, or keep it closely packed in a jar.

BLACK PUDDINGS.—When you are about to kill a pig, and intend to make black puddings, boil a peck of groats in water till they are tender, and then strain them. Then, having stirred two quarts of the blood till it is cool, gradually add the groats, and stir them well together. Add a tablespoonful of salt, a quarter of an ounce of powdered cloves and nutmeg, and a little powdered thyme and sweet marjoram. Then chop up some of the fat of the belly of the pig, and mix all well together. Have ready scraped and washed the guts quite clean, fill them three parts with the pudding: then prick them, and boil very slowly for an hour.

THE SHEEP.

If your establishment consists of many persons, you will, in all probability, kill your own meat; indeed, if you are located at a distance from a settlement, you may be obliged to do so, or go without fresh meat altogether. Sheep, from their size, are adapted for this, but as, in all probability, you would not consume a whole sheep while the meat would keep fresh and eatable, you had better at once salt some portion of it. The internal parts, such as the heart, liver, &c., and the head, soonest become tainted, and should, therefore, be cooked first; and the legs and shoulders are the best parts for salting; the neck, loins, and breast, remaining for immediate use.

To Cure Legs of Mutton for Hams.—Boil eight pounds of salt, nine ounces of saltpetre, and two pounds of molasses, in four gallons of water—taking off the scum as it rises to the top. Then rub the meat well with one ounce of nitre and half a pound of salt to every eight pounds, and let it lie twenty-four hours. Pour the pickle over it, and keep it down with weights. They may remain in pickle from twelve to twenty days, according to their size. Then take them out: wipe them quite dry; and hang up in a warm place. Then either hang them in a place exposed to the smoke of a wood fire, or by putting them into an oven (at the back) and making a wood fire at the entrance.

Legs of mutton, pork, &c., should be put into pickle with the largest end uppermost, as the salt penetrates more perfectly in that position; and they should be hung up in the same manner.

Beef.—There are two ways of salting beef: the one to rub the salt in, day after day, till the meat is thoroughly impregnated, the other to put the meat into pickle, and let it remain till wanted. If your meat is of a large size, and you want it to keep a long time, you must use a combination of these methods; but if you only require your meat corned or slightly salted, rub it well with salt and saltpetre, in the proportion of one pound of the former to one ounce of the latter. Lay it in a pan and repeat the rubbing, turning the meat every twenty-four hours for four days.

If your meat is to be kept long, you had better, at the end

of the four days, pour a pickle over it, made in the same manner as directed for mutton hams.

Tongues may be salted in the same manner; and after they have been in pickle twelve or fourteen days, let them be taken out and hung up in the smoke of a wood fire, or placed at the back of an oven, with a fire made of cobs, walnut-bark, or walnuts.

TO PREPARE AND COOK THINGS DRESSED ENTIRE.

TURKEY.—Pick your turkey: break the leg-bone close to the foot, and draw out the strings from the thigh. Cut off the neck close to the back—leaving enough of skin in front to turn over to the back. Take out the crop, and loosen the liver and gut with your finger. Then cut off the vent, and draw out the gizzard, liver, &c.—taking care not to break the gall. Put a cloth on the breast, and beat it till it lies flat. Then, if for *boiling*, cut off the legs: then put your finger in the inside, raise the skin, and put them under the apron. Put a skewer in the joint of the wing, and the middle joint of the leg, and run it through the body, and the other leg and wing. Clean the gizzard, and put it under one pinion, and put the liver under the other. Then turn the small end of the pinion on the back, and tie a packthread over the legs to keep them in their places. If to be *roasted*, leave the legs on: put a skewer in the joint of the wing: tuck the legs close up; and plunge the skewer through the middle of the legs and the body. On the other side, put a smaller skewer in at the small part of the leg: put it close on the outside of the sidesman, and put the skewer through. The same on the other side. The liver, gizzard, and pinions, to be placed as for roasting. Having singed your bird, make a forcemeat of crumbs of bread, parsley, and eggs, and stuff the craw part with it: then dredge it well with flour. Put it into cold water: let it come to a boil; and *boil* very slowly for half an hour. Take off your kettle, and let it stand in the hot water for half an hour more—which will cook it (if of a middling size *to roast*). Oyster sauce is the proper attendant. A middling-sized turkey will take two hours, and a large one two and a half or three hours doing it—very slowly at first. If you wish to make a plain stuffing, crumble some bread, and chop some pork, as if for sausage meat: season it with pepper and salt, and mix together with an egg. You may add powdered sage, savory, or parsley, according to taste; and a little butter is an improvement.

GEESE.—Pick your goose and take out the stubs, and then cut the feet off at the joint. Cut off the neck; but leave some skin. Pull out the throat, and tie a knot at the end. With your finger, loosen the liver, &c., at the breast end: then cut an opening by the side of the vent, and pull them and the entrails out. Beat the breast flat: put a skewer through the wing, and draw the leg close up to it. Then put another through the middle of the leg and the body; and the same on the other side. Cut off the vent, and cut a hole through which you are to push the rump. Your goose must now be well singed, and dredged with flour. It will take from three-quarters of an hour to an hour and a quarter by a brisk fire, and must be well basted.

DUCKS.—Trussed in the same manner—except that the feet are left on, and turned close to the legs. They are generally stuffed with sage and onions; and will take from twenty minutes to half an hour to roast.

FOWLS.—Pick your fowl clean. Take out the inside, and beat the breast flat. If for boiling, cut off the nails, and tuck the feet close to the leg. Cut a hole in the side of the apron, and put the legs under it. Put a skewer into the pinion: bring the leg close down to it, and put the skewer through the middle of the leg and body. The same on the other side. Put the gizzard and liver, cleaned, under each pinion, and turn the ends over the back. If you intend to *roast* your fowl, bring the leg down to the first joint of the pinion, which you first skewer down, and skewer it through the body. Do the same on the other side. Then skewer the small of the leg to the sidesman on each side. They will require twenty minutes' boiling—putting them in cold water, and must stand twenty minutes in the hot water afterwards. They will require nearly an hour *to roast*.

WILD FOWL.—After being properly plucked and cleaned, put a skewer into the pinion: pull the legs close to the breast, and run the skewer through the legs, body, and other pinion. They will take about three-quarters of an hour to roast.

PIGEONS.—Cut off the head. Take out the crop, and all the inside but the liver. Cut off the toes: make a slit in one of the legs, and put the other through it. Draw the legs close to the pinions, and run a skewer through the legs, pinions, and body. Put the gizzard under one of the pinions. Roast twenty or twenty-five minutes.

WOODCOCKS AND SNIPES.—Pick them clean; cut off the first joint of the pinions: turn the legs close to the thighs, and tie them together at the joints. Bring the thighs close to the pinions, and skewer them to the body. Skin the head, and put it on the point of a skewer, with the bill close to the breast. These birds are never drawn; and when roasted, a piece of toast is put under

them to catch the trail. They require about a quarter of an hour.

LARKS AND SMALL BIRDS.—Cut off the first joint of the pinions, and run a skewer through the middle of as many as you mean to cook. They will take ten minutes.

PHEASANTS AND PARTRIDGES.—Pick them. Take out the crop. Draw them. Cut off the vent: cut off the first joint of the pinion, and wipe them out with it. Put a skewer in the pinion: bring the legs close, and run the skewer through the legs, body, and other pinion. Put another skewer into the sidesman, and bring the legs close on each side of the apron, and run the skewer through all. Put the head on the top of the first skewer, with the bill fronting the breast. Pheasants will require about forty minutes: partridges half an hour. They are served with bread sauce.

HARES*.—Cut off all the legs at the first joint: separate the skin of the back, and draw it over the hind legs: then draw it over the fore legs and head—separating it with a knife where necessary. Cut the under sinews of the hind legs: bring them to the fore legs: put a skewer through the hind legs, then through the fore, under the joint, and run it through the body. The same on the other side. Put another skewer through the thick part of the hind legs and body: put the head between the shoulders, and keep it in its place with a skewer: tie a string round the legs to keep them in their places. Having prepared the hare, you stuff it as follows:—About four ounces of crumbled bread; the same quantity of suet, chopped fine; the liver boiled and shred, fine: about three ounces of butter; a sprig of winter savory, fine; some cayenne pepper, and half a nutmeg grated. Having put this in, you sew up the flaps. A hare will require an hour and a half, or three-quarters, roasting; and should be basted, first with salt and water, then with milk, and when nearly done, with butter.

RABBITS.—Draw the rabbit. Skin it in the same manner as a hare. Cut the vent open, and slit the legs about an inch on each side of the rump. Make the hind legs lie flat, and bring the ends to the fore legs. Put a skewer through the hind, then the fore leg, and then the body. The same on the other side. Bring the head round, and put it on the skewer. A rabbit will take about an hour. It may be stuffed like a hare, leaving out the liver—which is to be chopped up and mixed with the gravy, or cut up and laid round it. *To boil* a rabbit, you skewer them with the head straight up, the fore legs brought down, and the

* In drawing a hare, be sure to take out the vent gut. I have seen a whole party disgusted by this neglect more than once.

hind legs straight. They will require three-quarters of an hour; and are served smothered with onion sauce.

PIGS.—The pig being cleaned of the hairs, and the inside being taken out, cut off the four feet at the first joint; wash it well, and make it perfectly dry before you put it down to the fire. It may be stuffed with the following seasoning:—Some sage, shredded fine; two teaspoonsful of salt, one of pepper, and bread crumbs. It must be put to a brisk fire, and, as soon as it is warm, rubbed over with butter: and do this frequently while it is roasting. When done—which will be in an hour and a half or three-quarters—cut off the head, and take off the collar, ears, and jaw. Split the jaw in two: cut the pig in halves down the back, and lay it back to back—a jaw on each side, an ear at each shoulder, and the collar at the shoulder end.

TO BAKE A PIG.—Lay it in a dish: rub it over with butter: well flour it; and butter the dish. When done, take it out: rub it over with butter, and put it back again till dry. Cut it up as before directed. Skim the fat off the dish in which it was baked, and mix a little gravy with that which will be there, and boil it up with a piece of butter rolled in flour. Put it into a dish with the brains, and some sage in the belly.

All poultry must be basted and floured a few minutes before it is taken up.

TO KEEP POULTRY, GAME, &c.—It must be made quite dry, and hung up in a dry, but not warm, place. Tie up the neck and the vent, and put some charcoal inside. If it is the least tainted, wash it well in pearlash and water, and, when cooked, boil four or five lumps of charcoal in the water with it—which will restore it.

COLD FOWLS, GAME, &c., may be stewed, hashed, or made into pies. In either case, a little ham, or salt pork, is not only an addition, but an improvement.

CHAPTER IV.

Brewing.—Beer.—Mangel-Wurzel.—Ginger.—Cider, and Perry, and Mead.—Wines.—Liqueurs.—Distilling.—Bottling.

THE object of the ale and porter brewers is to make a strong and intoxicating liquor, at as little expense of malt and hops as possible. Cocculus indicus, nux vomica, grains of paradise, quassia, liquorice, treacle, blue and green vitriol, with fifty other drugs, enter into those pleasant compounds called ale and porter. The object of the private brewer, on the contrary, is to make a wholesome and pleasant beverage without adulteration; and to do this, good malt, good hops, and good water, are essential.

There are two kinds of malt used for brewing,—the high-dried and the pale malt; the former is generally used for beer that is intended for immediate use, the latter for the fine ales that require age to ripen them. Malt should be ground four or five days before it is used for brewing.

New hops are better than old; for though the latter may retain as much of the bitter principle, they have lost part of the aroma, on which the flavour of the beer depends.

WATER.—The quality of beer depends much upon the kind of water that is used; but in this matter you may only have the choice between soft and hard. The *best*, at least for the finer kinds of ales, appears to be river water that runs over a chalky bottom, and that is turbid when disturbed and agitated. If you have a choice, select river water of this kind, or pure rain water.

UTENSILS.—If you brew upon a large scale, a certain set of

utensils will be absolutely necessary; though you may do without pumps and underbacks, &c., &c. The following are absolutely required, but if you possess the slightest ingenuity you may make some of them yourself.

The first thing is a mash-tub; and if you have not a proper one, a pipe or hogshead may be cut down, and will answer the purpose sufficiently well. This must be mounted on a strong stand, sufficiently high to admit under it a proper vessel to receive the wort, and must have a spigot and faucet and a meuk basket, or substitute for them.

A spigot and faucet is merely a wooden tap; and a meuk basket is a wicker basket placed inside the tub, behind the tap hole, to prevent the grains from clogging up the tap. If you have not a spigot and faucet, a large tap may be used for the purpose, and if you have not that, procure a piece of hollow wood of a proper size, and fit a plug to it, which may be made to answer sufficiently well. If you are obliged to find a substitute for a meuk basket, you may fix any kind of wicker work at the back of the tap,—a very little ingenuity will manage this.

Mashing stick.—To make this implement, procure a piece of wood, such as a thick broom handle; drill four holes at one end, and put pieces of wood about six or eight inches long through them, so that they may be an inch and a half apart, and connect them by means of two pieces placed parallel with the handle.

Copper.—The same copper may be used for brewing that you employ for other domestic purposes, taking care that it is perfectly clean. If you have not a copper you may make shift with a large boiler.

Coolers.—These may be made in a very simple manner. Procure a piece of thick wood, say five feet long and three wide, for the bottom; two pieces, five feet two inches long and six inches wide, for the sides; and two, three feet long and six inches wide, for the ends; have a strong frame made to fit

these when they are properly placed, with grooves on the inside for wedges. If you place the bottom on a flat surface, the sides and ends in their proper places, put on the frame and tighten it together with wedges, the sides will bind the ends firmly in, and, if the wood is accurately planed, the whole will be water-tight. Coolers made in this manner may be taken to pieces to be cleaned, and put together, and a little water put into them a few hours before they are wanted.

A SIEVE.—If you have not a proper sieve you must use a bag made of canvas, in the form of an inverted cone, the orifice being kept open by means of a hoop.

Besides these, you will require a pail or two, and one or two large tubs, a bale, and it will add to your convenience if you have a wooden trough to carry the water from the copper to the mash-tub.

A TUNNER.—This consists of a small wooden tub, with a pipe in the middle to go into the bung-holes of your casks; it is used for tunning the beer.

CASKS.—The number and size of these will, of course, depend upon the quantity of beer you brew.

Having your utensils and malt and hops ready, we will suppose that you are about to brew, say thirty-six gallons of strong ale, and the same quantity of table ale, or thirty-six gallons of ale, and sixty-four of table beer, and that your copper holds thirty-six gallons or more. You will require four bushels of malt, and four pounds of hops.

First get all your utensils ready and quite free from the least taint or smell, then fill your copper and light your fire.

As soon as the water boils put about one third into your mash-tub, and let it remain till you can see your face in it, and while it is cooling fill up the copper.

When the water is sufficiently cool you begin to mash: let one person pour in the malt, a little at a time, while another mixes it intimately with the water, by means of the mashing-stick, so that every grain may be separated, reserving a sufficient quantity to strew over the top; you now add the

remainder of the water out of the copper, stirring it after every fresh quantity. When you have put in forty-four gallons of water, strew the reserved malt over the top, and cover the tub up with sacks.

While one person is doing this, another had better fill up the copper and make up the fire, which, of course, will have been damped.

When your mash has stood two hours, you may begin to draw it off, which will take about half an hour.

You have now to boil your beer and mash again: first damp your fire, and then, your first mash being run off, commence your second in the same manner, being quite as particular in separating the grains. When your copper is empty immediately put in the wort and hops, and make up the fire to bring them to boil. How long your beer ought to boil is a matter on which there is some diversity of opinion; but you will find the beer sufficiently boiled when the hops are thoroughly saturated with wort and sink to the bottom, and this will be in forty or fifty minutes.

You may consider that, on an average, an hour and a half will elapse from the time the beer is put into the copper till it is sufficiently boiled, and by that time your second mash will be ready to draw off. Having then set it running, and placed your sieve or bag over a proper tub or cooler, you begin to empty the copper, passing the beer through it so that it may be strained from the hops; and, having done this, you fill your copper with the second mash, the hops you have strained off, and about one third as many fresh ones*. You boil this in the same manner as the first, and strain it off.

You have now made your beer, and the next object is to

* If you have a thermometer, the water should be at 165 degrees Fahrenheit. Some of the Yorkshire farmers, who brew capital beer, do not boil the hops at all; but they put them in after the beer has boiled half an hour or forty minutes, and then simmer them till they are saturated with liquid and fall to the bottom. By this means the aroma of the hop, on which its peculiar flavour depends, is not driven off by the heat.

ferment it; and this is done by the addition of yeast. As soon as it has cooled down to blood heat is the proper time for doing this, and it should be brought to this state as quickly as possible.

There are various ways of adding the yeast to produce fermentation: some mix it with a little of the beer and pour it into the remainder; others put some yeast into a small wooden bowl, and let it swim on the top of the liquor till it works over and gradually mixes with the body of the beer; others, again, put it on a piece of toast, and proceed in the same manner. The first of these plans, however, is the simplest and the best, and the quantity of yeast employed must depend upon the state of the weather, less being required in hot than cold; three oz. may be considered as a maximum, and six oz. as a minimum quantity for every nine gallons.

The time beer will take to ferment depends upon the weather; if that be very hot, you must take care that it is not placed in too warm a place, or it may run into the next stage of fermentation, the acetous. From three to five days is about the range, at the end of that time the hissing noise that accompanies fermentation ceases, and the liquor is covered with a frothy head of yeast; this must be carefully removed, and the liquor tunned.

The disturbance occasioned by tunning will, to a certain extent, re-produce fermentation, so that you must leave some vent for the yeast to run out as it forms. The most cleanly method of doing this, is to bore a hole in the top of the middle stave in the front of the cask, through which it will run, and may be received in a vessel placed underneath.

When the fermentation has quite ceased, and not before, the cask must be bunged up; but before doing so, fill it with some beer you must reserve for the purpose.

In giving directions for brewing, it is impossible to consider every point in which you may be obliged to differ from the straightforward plan. Your copper may be too small to boil all your beer at once, and you may be obliged to make different shifts, for which no specific directions can be given;

if, however, you keep the following objects in view, you will rarely fail of success.

Firstly,—to get as much strength (if I may use the term) as possible out of a given quantity of malt. To do this the water must be sufficiently hot to extract the saccharine matter, but not so hot as to convert the malt into a kind of paste.

Secondly,—to let it infuse a sufficient time; from two to four hours. The smaller the quantity, the longer will be the time required for infusion.

Thirdly,—to impregnate it thoroughly with the bitter principle of the hop.

Fourthly,—to ferment it; and lastly, to fill up the casks before they are bunged down. If you keep these objects in mind, and have good hops, good malt, and good water, you can scarcely fail of having good beer.

Beer may be made of almost any strength; but you must remember to increase the proportion of hops in a ratio to the time you intend your beer to keep.

SUBSTITUTES FOR MALT.—It may happen that you are unable to get as much malt as you require, or that it is a tremendous price. Now keep in mind, that if you brew two bushels of malt, you may substitute one quarter barley, as it will become malted in the process of brewing. A saving in this manner will, however, be of less consequence in a colony, where there is no malt tax, and scarcely worth while if you can procure a sufficient quantity of malt for your purpose.

A proportion of sugar may also be used, and if judiciously managed your beer will be very little, if at all, inferior to that brewed with malt alone.

SUBSTITUTE FOR HOPS.—The ale and porter brewers use a proportion of quassia in their beer to save hops; and, certainly, if they restricted their adulterations to this substance, the public would have little cause to complain, as a bitter quassia is, perhaps, more wholesome than the hop itself,—not containing the narcotic principle which is found in the latter. But however wholesome beer made with quassia may be, it

will neither keep so long, nor has it the same flavour as when the hop is employed; it is, therefore, improper for those strong ales that require age to ripen, but may be used with advantage, where hops cannot be obtained, for the lighter kinds of beer intended for quick consumption.

One thing is absolutely essential in brewing,—perfect cleanliness. Let the vessels used for the purpose not only be cleansed for the time, but be always kept clean; the *least taint* will, in all probability, spoil the whole of your brewing. Never let casks be left unstopped; empty the mash-tub of the grains the moment you possibly can; wash and scrub your coolers piece by piece; and be particularly careful to attend to the spigot and faucet and meuk basket.

If you wish to have a wholesome beverage to drink fresh, you may brew in any small quantity, and will require scarcely any apparatus:—a large nine-gallon boiler, a half-barrel, and a cooler or two, will be all that are absolutely necessary; with two boilings you may make eighteen gallons of beer, and it will be fit to drink in a fortnight or three weeks. The best proportions to use will be fifteen pecks of malt, and one pound and a quarter of hops. All the boilings may be mixed together, and they will make a very good table ale. The quantity of hop required will in some measure depend upon the state of the weather, and the time the beer is intended to keep.

Mangel-Wurzel Beer.—Very good beer has been brewed from mangel-wurzel, in the following manner:—Take a hundredweight of mangel-wurzel; wash it thoroughly, and clean it with a brush. Cut it into small pieces, and boil it for half an hour in thirty-six gallons of water. Then strain it, and boil the liquor with two pounds of hops for half an hour more, or till the hops are thoroughly impregnated with water. Then work it in the same manner as beer brewed with malt. If you can subject the mangel-wurzel to the action of a press, you will obtain the saccharine matter more perfectly.

Cider.—To make cider on a large scale, you will require a proper press; but if you only make a small quantity, such a press as described under the head Cheese Making, but having a kind of shoot to carry off the liquor, will be sufficient.

Put your apples into the press—which must be placed over

a tub. Having pressed all your apples, put the juice into a tub; and if the weather be tolerably warm, fermentation will, in all probability, take place spontaneously. If it does not, you must add a sufficient quantity of yeast to produce it: a tablespoonful to every gallon will be sufficient; and the best way of adding it is to mix it with a small quantity of the liquor made rather warm, and then added to the rest.

Let it work till the first stage of fermentation is over, which will be known by a cessation of the hissing noise that accompanies it. The head must then be carefully removed, and the liquor casked. Let the casks be quite full, and remain open for a day or two, till the fermentation re-produced by the agitation of tunning has ceased; fill them up with some cider reserved for the purpose, and bung them tightly down. Some people ferment the cider in the casks, without using any intermediate tub.

PERRY—may be made in the same manner.

WINES.

ORANGE WINE.—Boil six gallons of spring water with twelve pounds of best powdered sugar, for three-quarters of an hour, with the whites of eight eggs well beaten up. When nearly cold, put in six spoonsful of yeast. Add the juice of twelve lemons, and the juice and rinds of fifty oranges, taking away the white part. Let all these work well together for forty-eight hours: then add two quarts of white wine, or one of brandy, and put it into your cask. Let it stand in the cask three or four months, and then bottle it.

RAISIN WINE.—Put two hundred-weight of raisins, with the stalks, into a hogshead, and fill it with water. Let them remain a fortnight—stirring it well up every day. At the end of that time draw off the liquor, and press out the raisins. Put this to the other liquor, and put them into a vessel that will just hold it. Let it stand till it has done hissing or making any noise, and then bung it down quite close, and let it stand six months. At the end of that time, peg it; and if it is quite clear, rack it off into another vessel. Stop it close, and let it stand three months longer, and then bottle it.

GRAPE WINE.—To one gallon of grapes put two quarts of water. Bruise the grapes. Let them stand a week, and then draw the liquor off clear. To every gallon of wine put three pounds of sugar. Put it into a vessel; and do not stop it down till the fermentation is over, which will be known by its ceasing to make a hissing noise.

BIRCH WINE.—Procure the sap of the birch tree by boring holes and inserting little tubes made of wood, just as the sap

begins to rise, and before the leaves appear. When you have a sufficient quantity of this sap, boil it as long as any scum rises—skimming it off as it comes up. To every gallon put four pounds of sugar, and the peel of a lemon cut very thin; then boil it half an hour, still skimming it. Pour it into a tub; and when nearly cold, set it to work with yeast. Let it stand five or six days—stirring it frequently. Get ready a cask just large enough to hold your wine: set fire to a brimstone match and throw it into the cask, and stop it close till the match is extinguished; then tun your wine into it. Do not bung it down (but just lightly cover it) till it has done working; then stop it close. Let it stand three months, and then bottle it.

GINGER WINE.—Boil seven pounds of Lisbon sugar in four gallons of spring water, for fifteen minutes, constantly skimming it. When cold, add the juice of two lemons, and boil the peels with three ounces of ginger, in three pints of water, for half an hour. When cold, barrel it, and add two tablespoonsful of yeast, and four pounds of jar raisins. Let it stand open till it has done hissing, and then add three drachms of isinglass dissolved in water, and bung it close down. In four months, bottle it.

GINGER BEER.—Boil five pounds of lump sugar in three gallons of water, for twenty minutes—skimming off the impurities; and boil six ounces of bruised ginger in one gallon of water, with the peel of three lemons. Mix the two boilings together while hot, and add (while hot) the juice of six lemons, and one ounce of cream of tartar. When nearly cold, put in a little yeast, and leave it to work. When it has ceased to work, draw it off clear; and if you wish it to have a very creamy head, add two ounces of gum arabic dissolved in a pint of water, and immediately bottle it in half-pint stone bottles, and tie them over with string. Lay the bottles on their side, and in three or four days it will be quite ripe. If it gets ripe too quickly for use, put the bottles into cold water. If you cannot get lemons, acidulate it to your taste with either Coxwell's lemon acid, or tartaric acid; and if you cannot procure these, increase the quantity of cream of tartar. If you use either of these acids, put a few drops of essence of lemon on a lump of sugar, and mix it with the liquor. You may make ginger beer without any of these acids, and may either omit them altogether, or substitute the juice of the pomegranate, or any acidulous fruit that may fall in your way*.

* As you may not know how to perform this, and as the security of your corks depends upon its being done properly, I will explain the plan. Make a loop with the string, and draw another loop through it; the first loop goes round the neck of the bottle, and the other over the cork. Then turn back the ends over the first loop, and tie them.

MEAD.—To thirty gallons of pure soft water put four gallons of honey. Mix them well together. Boil this down till it is reduced to about ten gallons—mixing in the scum as it rises. Put it into shallow tubs till it is about as warm as new milk. Then tun it, and let it remain to work; and when it has ceased to make a hissing noise, bung it close down. This makes a very strong, rich wine; and you may lessen the proportion of honey if you wish it to be lighter.

CHERRY BRANDY.—Stone eight pounds of black, or Morella, cherries, and put them into a gallon of the best brandy. Break the stones in a mortar, and put the kernels in also. Cover it up close, and let it stand a month or two, and then bottle it off clear for use. Some people let the brandy remain on the cherries, and use them together.

NOYEAU.—Put any peach, or apricot, or black cherry kernels, into white brandy, and let them remain till the liquor has become impregnated with their flavour; then boil two pounds and a quarter of the finest loaf-sugar and one pint of water together to a syrup, skimming off the impurities as they rise. When it is quite clear, and has the appearance of a thick oil, pour it out into a vessel to cool. Then, having filtered your tincture of the kernels through blotting paper, mix it in the proportion of one pint of the spirit to one pint and a half of the syrup, and you will have a very excellent noyeau; which will be much improved by keeping.

PEPPERMINT.—Dissolve twenty drops of the oil, or sixty of the essence of peppermint, in a pint of strong white brandy. Filter it, and mix it with a pint and a half of syrup, made as directed under the head Noyeau.

ANISEED.—Dissolve twenty-five drops of oil of aniseed in a pint of strong white brandy, and mix it with a pint of syrup.

CARAWAY.—Made in the same way, with the oil of caraway.

CLOVES.—Made in the same way, with the oil of cloves.

CINNAMON.—Made in the same way, with the oil of cinnamon.

RASPBERRY VINEGAR.—Put two pounds of raspberries into a pint of distilled vinegar: let them macerate twenty-four hours; then press out the liquor. Strain or filter through paper; and then add one pound of sugar to each pint, and boil to a syrup.

BOTTLING.

IF you are about to bottle any quantity of wine or beer, you had better provide yourself with the proper apparatus—a boot, which consists of a round box made of stiff leather,

a little larger than a bottle, and having a strap to fix it upon the thigh; this is used to prevent waste, as, if a bottle should burst in corking, the liquor will be received in the boot: a pair of cork squeezers, and a wooden mallet.

Unless for ginger beer, or something to be drunk very quickly, and not of much consequence, you will find it eventually cheaper to use the very best velvet corks.

Being prepared with these things, fill the bottles a little above the beginning of the neck, and let them remain a short time before you cork them down; this must be particularly attended to in bottling beer, or otherwise so much fixed air may be suddenly disengaged that half your bottles will burst, unless the beer be very stale, in which case the precaution is unnecessary.

In bottling beer that is wanted to get up quickly, some people put in a few grains of rice, a little sugar, or a plum or two.

Your bottles being prepared for corking, place one in the boot, select a cork rather larger than the neck of the bottle, and compress it with the cork squeezers, then knock it down with the mallet, and proceed in the same manner with the remainder.

Having corked your bottles, your next object will probably be to pack them safely, and to do this you will require plenty of sawdust, and some straight, even laths; put a layer of sawdust upon the floor of your cellar or bin, and on that place a row of bottles, with the corks towards the wall; then put another layer of sawdust, so as to fill up all the interstices, and raise half an inch, or, if you have plenty of room, an inch above the bottle; on this put two laths, one near the necks of the bottles, and the other about an inch from their bottoms; strew another layer of sawdust upon them, and then place another row of bottles, with their corks from the wall. Proceed in this manner till you have packed the whole.

The reason for placing bottles on their sides is, that the

fixed air is prevented from escaping, both from the position it assumes, being lighter than water, and by the corks swelling from absorption of the liquid.

Cider and beer will require tying or wiring over, for which see Ginger Beer; wine is generally done over with wax.

DISTILLING.

DISTILLING is simply evaporating any liquid, and collecting the condensed steam, as the lighter parts rise first; and as spirit is lighter than water, if any liquid containing the vinous principle, or in plain English, sugar, be submitted to this operation, a spirit more or less pure is obtained.

To distil you require a copper still, or a copper, glass, or iron retort; the still is generally employed when large quantities are operated upon, and the retort when only a small quantity is required, except in some chemical operations in which the retort is always used. We shall say nothing about the retort, then, as it is seldom used except for chemical purposes.

The still is divided into three parts:—the body, or that part into which the liquid is put; the head, or part that collects the steam; and the worm, or spiral tube through which it passes, and which is fixed in a tub, filled with water, that it may be more readily condensed. If a still be above a certain size, it should be provided with a safety-valve.

The method of using the still is this:—the liquor to be operated upon is put into the body of the still, taking care that it does not come so high as to boil over into the neck, and yet sufficiently so that there may be enough liquid left, when you have drawn over what you intend, to prevent it from burning. Having filled your still and put on the head, you light your fire, fix on the worm, and fill the worm tub with cold water, and place a vessel to receive the liquor as it passes over.

As soon as the condensed liquid begins to drop, taste it, that you may be sure it is not impregnated with any improper flavour, further than is always attendant upon the liquor that first comes over. Having ascertained this, attend to the fire, and take care that it is adapted to the subject of your distillation. If you are distilling wash for spirits, the liquor should just boil; if the steam passes out of the worm in the form of vapour, your fire is too hot, and produces more steam than your worm tube can cool, and you must deaden it a little; and if the water in the worm tube be warm, draw some off and put in fresh cold, and you may throw a sack, or something else, dipped in cold water, over the neck of the still.

When you have drawn over what you intend, if you are distilling spirits, as soon as it begins to taste weak, damp your fire: do not take off the head of the still till the liquor is quite cold, but, if it has a safety-valve, remove the weight, and as soon as the still is cold let it be thoroughly cleansed.

Your spirit, whatever it is, will be very impure, and require one or two rectifications; and you had better add two ounces of potash to every gallon of spirit, and draw it over again and again till it is sufficiently strong and pure. Remember that the slower the liquid is drawn over, the stronger will be the produce.

If you have an hydrometer or spirit-gauge, you can, of course, easily ascertain the strength of the spirit. If you have not, you had better occasionally try its strength by setting light to a piece of paper dipped into it. Of course, the better it burns the stronger it is. Reserve the contents of the still for future operations with fresh liquor.

In distilling perfumes, remember that the more slowly you conduct the operation the more fragrant will be the scent. The French perfumes are more fragrant, but not so permanent, as ours; and this arises, not only from their performing the distillation more slowly, but, instead of macerating the flowers, &c., in the water, or spirits, they are put upon

a kind of sieve or tray, above the level of the liquid, and the steam percolating through them, seizes only the more fragrant and finer parts, leaving the grosser and more permanent untouched.

Different substances and liquids, however, require very different management—a knowledge of which can only be obtained by practice.

To save freightage, you may have a still-head, with a very long neck, fitted to a large kettle or boiler, so that it may be used on a common fire; the long neck preventing the worm from coming too near it: or you may have a long tube made to fit on the neck when required; or you may find a large copper retort, that may be heated on the brick stove mentioned under the head Candle-making, a very useful thing; and if it has a worm fitted to it, it may be used for all the purposes of a still; but it must have a large aperture and stopper at the top for the admission of the liquor.

The next question is, what are the proper things to be submitted to distillation?

Rum is obtained by distilling a wash made of sugar, or treacle.

Gin—from barley; being afterwards distilled with juniper berries.

Brandy—from the lees of wine, &c., &c.

Washes made of beet-root, parsnip, maple sugar, wheat, oats, carrots, will all give a certain quantity of spirit of one kind or other—in short, anything from which sugar can be obtained.

Rum is the easiest spirit to distil; and you proceed in the following manner:—Make a wash of coarse sugar and water, and distil as long as the liquor is impregnated with spirit. Then redistil it—drawing over only the stronger portion.

Gin.—Distil a spirit from a wash made of barley, and rectify it till it is colourless. Put two gallons of spirit, and one of water, into a still; then add two ounces of juniper berries to every gallon, and draw over two gallons.

Lavender Water—Spirits of Lavender.—Lavender flowers a sufficient quantity. Water enough to cover them. Proof spirit as much as you wish to draw over.

Spirits of Rosemary.—Rosemary flowers a sufficient quantity.

Water to cover them. Rectified spirit as much as you intend to draw over.

Rose Water.—Rose leaves, any quantity. Water, a sufficient quantity. Distil over so much as will leave the flowers still wet.

Peppermint Water.—The same.

Mint Water.—The same.

Essential Oils.—If you are disposed to distil essential oils, you had better macerate the substance to be acted upon in salt and water for twenty-four hours, and then distil over with a very strong heat. The essential oil will be found swimming upon the top of the liquid that comes over, and must be separated by means of a separating funnel, or in the following manner :—Take a pewter pot ; make a small hole near the bottom (close to it), and fit a peg to it. Put the liquid you wish to separate into this vessel, and let it stand a few minutes, when the oil will swim at the top. Take out the peg and let out the water—stopping up the hole as soon as that has run off.

Of course, it would not be worth while to distil essential oils unless on a tolerably large scale, and for sale. The small quantity any family could possibly require for their own consumption, would never be worth either the expense or the trouble. With regard to spirits, and some of the medicinal waters, the case may be different ; and as they are less trouble, and more useful, it may answer your purpose to prepare them. Upon the whole, you will find a still a very useful addition to your conveniences.

If by any chance you wish to distil vinegar, you must either use a glass retort, or a copper worm, as the pewter worms usually employed would render it opaque and mothery.

CHAPTER V.

RECIPES.

BLACKING, CHEAP.—Mix two ounces of ivory black, an ounce and a half of sugar, two teaspoonfuls of oil, a quarter of an ounce of oil of vitriol, and half a pint of beer.

BLACKING, LIQUID.—Mix one pound of ivory black, four ounces of lamp black, and a quarter of a pint of oil; add two ounces of oil of vitriol, and cover up for six hours. Then half a pound of moist sugar, and a gallon of vinegar.

BLACKING, PASTE.—Mix half a pound of ivory, two ounces of lamp black, three ounces of oil, and one ounce of oil of vitriol. Let it stand covered up, and add enough vinegar to bring it to a proper consistence.

BOOT-TOP LIQUID.—Add half an ounce of spirits of salts to half a pint of milk. Pour it clear from the curd, and add four or five grains of coccinella, if you wish your leather to have a pink cast.

BONNETS, STRAW, TO CLEAN.—Straw bonnets are cleaned in a variety of different ways. A weak solution of oxalic acid: by putting them into a box, and subjecting them to the fume of sulphur, &c.

BEETLES, TO DESTROY.—Fill their holes with quicklime, and sprinkle it wherever they infest.

BUGS' POISON.—Mix mercurial ointment and turpentine to the thickness of cream, and paint over the joints, &c., of the bedsteads; or dissolve twenty grains of corrosive sublimate in two ounces of spirits of wine, and add half a pint of spirits of camphor, and wash the joints, &c.

BLACK, LAMP—Is made by catching the smoke of burning oil, or fat, on tin or earthen plates. It is then scraped off; and if intended for painting, or making blacking, should be burned in a covered vessel to get rid of the oil it contains.

BLACK, IVORY.—Made by burning hard bones in a covered vessel: then burning the charcoal again, and powdering it.

BEER, STALE—TO RECOVER.—Add a small quantity of carbonate of soda, or potash: the former is the most pleasant.

CARD-BOARD—Is made by damping sheets of white paper with very thin paste—laying them one upon another till they form a proper thickness, and then putting them flat, under a press or heavy weights. You may make card-boards of any substance you choose, and may use any old paper that is not torn, for the purpose.

CASCARILLA BARK.—A small piece of this bark put upon hot iron, gives out a scent very similar to musk, and is an excellent perfume to overcome disagreeable smells.

CAYENNE PEPPER.—Put a layer of flour at the bottom of a dish, then put a layer of capsicums, and then another layer of flour, and so on—covering the whole with flour. Dry this in a slow oven; and when the capsicums are crisp, either take them out and powder them separately, or with part of the flour.

CELERY, ESSENCE OF.—Digest four ounces of bruised celery seed in half a pint of spirits of wine for fourteen days: filter, and keep the essence in a well-stopped bottle.

CLEAN—BRASS.—Rub it first with some very weak vitriolic acid, and then polish with rotten-stone and oil.

CLEAN—INSIDE OF TIN POTS, &C.—Pour a little oil of tartar into the vessel: let it remain a short time, and then wash it three or four times with water.

CLEAN—SILVER AND PLATED ARTICLES.—If much tarnished, boil them in hartshorn shavings and water, and afterwards polish with spirits and whitening.

CLEAN—POTS DE CHAMBRE.—The disagreeable fur that accumulates on these vessels may be removed by pouring either sulphuric or muriatic acid into them, and washing them afterwards with cold water.

COLD CREAM.—Melt two ounces of white wax, six drachms of spermaceti, and one ounce of almond oil, by a very gentle heat. Rub them in a warm mortar till they are intimately mixed; adding, from time to time, small quantities of rose or some other scented water, till the ointment looks like cream. Then put it into a jar, and cover it with rose water.

CAMPHOR, TO POWDER.—To powder camphor, it is necessary to add a few drops of spirits of wine, or very strong brandy.

CEMENT FOR CHINA.—Grind some flint glass to a fine powder, and then grind it well with the yolk of an egg. China joined with this will withstand boiling water.

CEMENT, UNIVERSAL.—Curdle some milk by means of spirits of salts: pour off the whey, dry the curd, powder it, and mix with

an equal weight of powdered quicklime. This must be kept in small well-stopped bottles; and when used, mixed with warm water.

CEMENT, COMMON.—White of egg and white lead well mixed together.

DYE, BLUE.—Dissolve indigo in sulphuric acid by means of heat: pour the liquid off from the dregs, and dilute according to the colour you require.

DYE, GREEN.—Boil fustic or saffron in soft water: strain the decoction. Dip your cloth to be dyed green, first in this and afterwards in a mixture of the solution of indigo and this decoction.

PINK—With coccinella, set with alum.

YELLOW.—Fustic or saffron boiled in soft water.

DESTRUCTION OF ANTS.—See Ants.

EAU DE COLOGNE.—Rectified spirits of wine, ten drachms; essence of bergamot, oil of rosemary, each two drachms; essence of lemon, twenty drops; essence of orange flower, twenty drops. Let it stand three days, and add spirituous honey water.

EAU DE LUCE.—Castile soap, ten grains; oil of amber, twenty drops; spirits of wine, one ounce; solution of ammonia, half an ounce. Mix.

FLY WATER.—Infuse half an ounce of quassia in a pint of boiling water for two hours: strain, and add a little sugar or honey. Put it into shallow vessels in different parts of the room.

FILTERING.—I have frequently seen people put to some inconvenience from not knowing how to manage this simple operation. Fold a square piece of filtering or common blotting paper into the form of a triangle: fold this again, and you will form a cone. Open this and put it into a funnel, and pour the liquid you wish to filter into it, and it will pass through quite clear and transparent, the dregs being left on the paper.

GREASE SPOTS, TO REMOVE, FROM SILK.—If the silk is of a light and delicate colour, it is almost impossible to remove grease from it without somewhat injuring its appearance. The best means is to scrape some French chalk over the spots: let it remain for a day or two, and then brush it out. If, however, the silk is not of a delicate colour, you may remove the spots with spirits of turpentine; or if black, by hartshorn.

GREASE SPOTS FROM WOOLLEN.—Grease spots may be taken out of woollen by means of spirits of hartshorn.

GREASE FROM WOOD AND STONE.—If you can obtain fullers' earth, it is the best application. It should be mixed with water, and put on in the form of a paste, hot. If you cannot get this,

you may use oil of tartar, or salt of tartar. If these stain the wood brown, wash it with a little diluted vitriolic acid.

GUM.—Many kinds of gum are equal to the common gum arabic: such as that from the apple, cherry, plum, &c. If you have any of these trees, you will find it worth while to preserve the gums.

GUNPOWDER.—Under certain circumstances, you may not be able to obtain a supply of this very necessary article. At the same time, it is more than probable that you may have two of the ingredients in the house, and the other (charcoal) you may easily make; and rather than do without you may feel disposed to try your hand at compounding it yourself. I have myself made it without other apparatus than a pestle and mortar, and a sieve; and there can be no reason why any one else should not do the same. The best gunpowder is made of nitre, saltpetre, and charcoal, in the following proportions:—Charcoal, three parts; nitre, seven parts; and sulphur, two parts. Powder them separately, and mix them together in a stone mortar; and with a wooden pestle adding gradually a sufficient quantity of water to make a paste. Then grain it by rubbing through a finer or coarser sieve, according to the fineness of the powder you require. Dry the powder by spreading it thinly on tin or earthen plates, exposed to the sun and air, but guarded from the wet; and finish it in a tray, placed over a vessel of boiling water in such a manner that the steam cannot affect it with damp. Gunpowder damaged by wet may be mixed up into a paste and re-grained.

HERBS.—Sweet and other herbs may be preserved for a long time by drying them quickly, powdering them, and preserving in closely-stopped bottles. If the operation of drying is properly managed, they will lose very little of their flavour or smell.

INK.—Put half a pound of galls, coarsely powdered, and four ounces of logwood, in very small pieces, into a stone bottle. Pour upon them a gallon of boiling rain water, and let it stand in a warm place (closely corked) for a fortnight, shaking it frequently. Pour off the clear liquid into a bottle containing two ounces of green vitriol, a quarter of an ounce of blue vitriol, a quarter of a pound of moist sugar, and four ounces of gum arabic. Let it stand a few days, shaking now and then, and it will be ready for use. You had better add four ounces of brandy. If properly made, this is an excellent ink, without the plague and trouble of boiling; it will cost about 2*s.* 6*d.* a gallon.

INK, JAPAN.—Boil one pound of galls and eight ounces of logwood in two gallons of rain water down to eight pints. Strain while hot, and add four ounces of green vitriol dried over the

fire till it is white, one ounce of blue vitriol, eight ounces of gum, and six ounces of moist sugar. Let it stand in a warm place till all the ingredients are dissolved, and then add six ounces of brandy.

INK, RED.—Boil two ounces of Brazil wood and ten grains of coccinella (if you have it) in two pints of vinegar to a pint and a half. Strain, and add half an ounce of alum (roche, if possible), and half an ounce of gum.

INK, BLUE.—Dissolve indigo in sulphuric acid with heat, and dilute the solution with water, and add half an ounce of gum to the pint.

INK, MARKING.—Dissolve a hundred grains of lunar caustic and ten grains of sap green in an ounce of pure soft water, for the ink; and half an ounce of soda in three ounces of water, adding a few grains of coccinella, and an ounce of gum, for the pounce. To use it, wet the linen with the pounce, and dry it. Then glaze it with the handle of an ivory knife: after writing with the ink, expose it to the sun and air. And as soon as the ink has turned black, wash out the pounce.

IRON, TO REMOVE RUST OF.—Melt a pound of lard, and add half an ounce of powdered camphor, stirring it till it is dissolved. When nearly cold, add as much black lead as will make it of a slate colour. Paste this over the iron: let it remain on twenty-four hours, and then let it be rubbed off.

IRON, SULPHATE OF—GREEN VITRIOL.—You may want this preparation to make ink, or to dye with, and not be able to procure it without sending some distance. If you have any oil of vitriol, dilute it with three times its quantity of water, and throw any small pieces of old iron you may have into it. Pour the solution off (when the acid is saturated with iron,) into a shallow dish, and expose it to the action of the sun and air, but under cover. Spontaneous evaporation will take place, and in a short time, crystals of the salt will be found at the bottom of the vessel.

IRON-MOULDS.—To take out iron stains, wet the linen, and put the part stained upon a pewter vessel as hot as you can make it. Then rub the stains out with tartaric acid, salt of lemons, salt of sorrel, or diluted spirits of salts.

LEATHER, TO WATERPROOF.—Melt together, over a slow fire, a pint of boiled oil, two ounces of yellow wax, two ounces of turpentine, and half an ounce of Burgundy pitch, till they are thoroughly combined. Rub this well into the leather while hot; and when it has dried, repeat the rubbing again and again, as long as the leather will absorb it. Put the leather by till quite dry, and it will not only be waterproof, but as elastic as a glove.

LEATHER, TO WATERPROOF.—Sponge the leather over with a

solution of Indian rubber in naphtha, and repeat it as long as the leather will absorb it.

LEATHER, LIGHT-COLOURED, TO CLEAN.—Dissolve an ounce of oxalic acid in as little boiling water as will take it up: add it to a pint of milk: separate the curd by straining. Used to clean saddles, and should be labelled, *Poison.*

LOZENGES.—Powder the finest lump sugar till it is as fine as flour. Sift it, and then add a sufficient quantity of thin gum water (tragacanth is best) to make a paste. This may be mixed with anything required to form the different kind of lozenges; and then rolled flat and cut out with a stamp. They are then dried gradually in an oven. They may be made about twenty to the ounce.

LOZENGES, PEPPERMINT.—Ten drops of the oil to the ounce.

LOZENGES, IPECACUANHA.—Two grains of ipecacuanha, fifteen of tartaric acid, and half a drop of attar rose.

LOZENGES, GINGER.—Ginger, twenty-four grains to the ounce.

LOZENGES, CAYENNE.—Forty drops of tincture of capsicum to the ounce.

LOZENGES, MAGNESIA.—Twenty grains of magnesia to the ounce.

LOZENGES, NITRE.—Ten grains to the ounce.

LOZENGES, CROTON.—Nine drops of croton oil to the ounce.

LEMON SQUEEZERS.—You may easily make a pair of these, and they will be useful for a variety of purposes. Procure two pieces of wood nine or ten inches long, three wide, and one and a half thick. Cut off an inch at each side to the extent of six or seven inches, and put a pair of hinges flat on the broad ends.

MATCHES, SULPHUR.—Common matches are made by cutting thin pieces of deal to a point, and dipping them into melted brimstone.

MATCHES, PYROLIGNEOUS.—Cut very small matches of wood, and dip the ends into melted brimstone, and then into a composition of one part of oxymuriate of potash, one of nitre, and three of sulphur, mixed into a paste with water. They are lighted by dipping into a bottle containing oil of vitriol, which may be prevented running out by the addition of asbestos or spun glass.

MATCHES, LUCIFER.—Bichloride of potash, one part; antimony, two parts; mixed up with thin sugar and water to the consistence of a paste, into which the matches are to be dipped, and then thoroughly dried.

MARBLE, TO CLEAN.—Paint it thickly over with a mixture of oil of tartar and quicklime made as thick as cream. Let it remain on four days, and then wash it off with boiling water.

MILK OF ROSES.—Peel and blanch an ounce and a half of sweet almonds: beat them into a paste, adding very gradually ten ounces of rose-water. Strain it, and add one drachm of oil of almonds, ten grains of salt of tartar, and two ounces of spirits of wine, in which one drachm of Castile soap and fifteen grains of white wax and spermaceti have been dissolved, and two ounces of orange-flower water. Let it stand three days, and pour it off clear.

OILS, SCENTED.—Select any flower with the scent of which you wish to impregnate the oil. Strew some of them in a basin, and then put a layer of cotton, saturated with olive, or nut, or poppy oil, upon them. Then put another layer of flowers, and then one of the oiled cotton, and so on. Stand the basin in the sun; and when the oil has imbibed the scent, press the whole with a pair of lemon squeezers; and if you want it stronger scented, repeat the operation with fresh flowers.

OIL OF TARTAR.—Pour two pints of boiling rain water upon four ounces of salt of tartar, and pour six pints of the same upon a pound of freshly unslacked lime. Mix them, and put them by in a covered vessel till cold; then strain through calico. Oil of tartar is useful for a variety of purposes named in the body of the work: to clean the inside of tea-pots, oil-lamps, oil-cans, pewter, &c., &c.; but must be labelled, *Poison*.

OIL, POPPY.—Bruise the seeds, put them into a horse-hair bag, and press out the oil by means of a powerful press. Set it by till the fæculences subside, and filter through horse-hair.

OIL OF SUNFLOWER SEED.—Proceed in the same manner. The cake is excellent food for poultry, game, and cattle, &c.

OIL OF NUTS.—Proceed in the same manner. Does not coagulate with cold.

OIL OF THE PALMA-CHRISTI SEED, CASTOR OIL.—Soak the seeds a short time in cold water, that you may remove the peel easily. Then take away the spur of each seed, and proceed as directed under the head, Poppy oil.

POMATUM.—Melt mutton suet in warm water: let it cool, and then add an equal portion of prepared lard. Melt these together, and when nearly cold, add any kind of scent.

POMATUM, MARROW.—Take the marrow out of the bones of a leg of beef and melt it in water, and strain into cold water. When cold, scrape off any impurities from the bottom, and wash it again and again in cold water. Re-melt it, and add (if the

weather is *very hot*) one drachm of white wax to each ounce; and when nearly cold, any scented oil you may choose.

POMATUM, PALM.—Prepared suet, one ounce; lard, five ounces; yellow wax, a quarter of an ounce; palm oil, half an ounce. Melt these together, and when nearly cold, add essence of bergamot half a drachm.

POTATO CHEESE.—Boil some good white potatoes; peel, and reduce them to a pulp: add some salt, and enough of sour milk to form a dough: knead the whole well together. Cover it up, and let it remain a few days; then knead it up again, and divide it into cheeses. Place them upon baskets, or some kind of wicker-work, to drain off the superfluous moisture. Dry them in the shade, and pack them up excluded from the air. They will keep for years.

PAPER, GLASS.—Damp some sheets of cartridge paper, and cover it over with a coat of glue (thin). Then powder some flint glass very fine, and sift it regularly over it. Thick linen may be prepared in the same way both with glass and emery, and serves excellently to clean irons, &c., not wearing out so soon as paper.

PAPER, EMERY.—Prepared with emery in the same manner as the glass paper. It may be made of different degrees of fineness.

PAPER, SAND.—Prepared in the same manner, with the fine white sand.

PAPER, FLINT.—Prepared in the same manner, with powdered flints.

PAPER, OILED.—Procure some strong cartridge paper, and sponge it with linseed oil. As soon as the first coat is dry, do it over again; and if you do not mind the last coat being of a deep colour, you had better use boiled oil. Oiled paper is a good substitute for glass, particularly for garden frames, &c., and with care will last a considerable time.

TRACING PAPER.—Prepared in the same manner as the last, except that white paper is used.

POWDER, HAIR.—Starch (not coloured), powdered very fine, and sifted.

POWDER, VIOLET.—Common hair powder, three parts; powdered orris root, one part.

POWDERS, GINGER BEER.—Carbonate of soda, thirty-five grains; ginger, seven grains; and powdered sugar, one drachm in each blue: and tartaric acid, half a drachm, in each white paper.

POWDERS, SEIDLITZ.—Carbonate of soda, thirty grains, tartrate of soda, one drachm and a half in each blue, and tartaric acid, half a drachm in each white paper.

POWDERS, SODA.—Carbonate of soda, thirty-five grains in each blue, and tartaric acid, thirty grains in each white paper.

POWDERS, LEMONADE.—Carbonate of soda, fifteen grains, sugar, one drachm and a half in each blue paper; tartaric acid, thirty grains in each white paper.

POWDER, FUMIGATING.—Powdered cascarilla bark, one ounce; powdered, G. Benjamin, two drachms: to be mixed. A small quantity to be thrown on a hot shovel.

POWDER, TOOTH.—Camphor, one drachm. To be powdered by adding spirits of wine. Then add carbonate of soda, two drachms, powdered orris, powdered myrrh, powdered catechu, each five drachms, cuttle-fish shell, dried, and very finely powdered, six drachms. Mix.

POWDER, TOOTH.—Camphor, one drachm; carbonate of soda, two drachms; powdered myrrh, four drachms. To be mixed.

POWDER, TOOTH.—Myrrh, one ounce; cream of tartar, two drachms; cuttle-fish shell, dried, and finely powdered, eight ounces. Mix.

POWDER, TOOTH.—Charcoal, very finely powdered and sifted.

PERCUSSION CAPS.—Caps ready filled are apt to become injured by exposure to damp, and a variety of causes. You will find it better, if you have a percussion gun, to take out the caps unfilled, and fill them yourself. If you choose to prepare your own powder, it is done in the following manner:—You will require bi-chlorate of potash, and crude antimony. Mix two drachms of bi-chlorate of potash and three of antimony intimately together; but be sure to damp them, so as to form a paste, before you do so. (I once had a large quantity explode, merely from the pressure of the pestle upon the mortar.) Having thoroughly mixed them, (and if you add a very small quantity of sugar, it will make them grain better,) rub through a sieve, and dry in the same manner as recommended for gunpowder.

SEALING-WAX.—It would be useless to give directions for making sealing-wax composed of resins and gums, the emigrant has little chance of being able to procure. Nor would it be worth his purpose to make it at all, if he could buy it ready made. It is only under certain circumstances that he will require it, and then it need not be superfine.

SEALING-WAX.—Resin, one pound; gum lac, half a pound; vermilion, a sufficient quantity to colour it red: or dried lamp black, to make a black wax.

STAINS FOR WOOD.—The staining of shelves, tables, bed-steads, &c., adds much to their neatness, if made of common wood; and,

in some cases, may not be a bad substitute for paint. You may, if you choose, impregnate your stain with some soluble poison, such as corrosive sublimate, which will, to a certain extent, keep the wood free from the attacks of insects.

STAIN, BLACK.—Wash the wood with a strong decoction, made by boiling one pound of logwood and half a pound of galls in four quarts of water to three, and put on boiling hot. Do it over two or three times, and then sponge it with a solution of two ounces of green and half an ounce of blue vitriol, in two pints of water, till it is of as deep a black as you require.

STAIN, YELLOW.—Dissolve rusty iron in spirits of salts: dilute it with water, and sponge your wood with it, &c.

STAIN, GREEN.—By sponging the wood, firstly with a decoction of saffron, and then with the solution of indigo. (See Blue.)

STAIN, BLUE.—Stain with the solution of indigo properly diluted.

STAIN, RED.—Dissolve G. Dragon in spirits of wine, and put on hot.

STAIN, RED.—Stain with a solution of orchil, hot, and then wash with some diluted acid.

SMELLING SALTS.—If you have not the carbonate of ammonia, powder some sal ammonia, and mix it with an equal part of salt of tartar.

STRASBURG BUTTER.—Boil a pound of calves' liver, and beat it into a pulp, with three-quarters of a pound of butter, two ounces of garlic or onion, rasped very fine. Beat the whole well together with pepper, salt, and any kind of spice you have, and the flavour of which you like. The real Strasburg butter is made with the liver of geese, and the birds are nailed to the floor by the web of the feet, and stuffed with food to increase the size of that part.

STRAW, TO PLAIT.—Plaiting straw, or rushes, &c., may form a useful occupation for the younger branches of a family; and it is one that the youngest children may manage. Straw may be plaited for bonnets, hats, mats, baskets, &c., either whole or split. Rushes may be used for the latter purposes; and as the principle of plaiting all is the same, I will describe the most difficult—the plaiting split straw for bonnets. Select the finest and whitest straws; cut off all the knots; sort them into sizes; and then run them through a straw splitter. Put your straws into water. Take four, double them obliquely. Hold them between the fingers and thumbs of each hand—the polished side of the straw being next you on the right hand. Pass the outside straw on the *left hand* behind

the one next to it, and before the others, and draw it tight. Proceed in the same manner with the outer straw on the right hand, then again on your left. When your work is fixed, turn back one of the straws on the right side, so that it may be left out —leaving only seven. You proceed turning the outside straw, first of one side and then of the other, behind the one next to it, and before the others. When you want to join a straw, wait till the one requiring it, is the second on the left hand: then place a fresh one behind it, the smooth side from you, and turn the outer one round *both*; and the next time you pass the straw from that side, turn the short piece back, and leave it out. By proceeding in this manner, the ends will be on the same side, and, when you have finished plaiting, are to be cut off. The whole directions for plaiting, after the work is commenced, are contained in the following distich, with which the Buckinghamshire children accompany their work:

Under one and over two,
Pull it tight, and that will do.

The particular knack of plaiting can only be acquired by practice; but you must take care, in turning the straws round, to fold them backwards at a regular angle. Rushes may be plaited in the same manner; and whether you use seven, nine, or eleven straws, the principle is the same. With ingenuity you may diversify the mode; but it would be useless to describe the method of performing ornamental plaiting in a work of this kind. You should take out straw splitters; they cost about one shilling each. After the work is plaited, it will still require to be trimmed; the ends are to be cut off, and the edges pressed and flattened; and as you are not likely to have a proper mill, you had better damp it and press it with a heavy flat or box iron.

Syrup.—You will find it useful to have syrup ready made, for lemonade, punch, &c., and to prepare some other things, such as liqueurs, &c. Boil two pounds and a half of sugar in a pint of water, skimming off the impurities as they rise, till the solution resembles a clear oil.

Snails and Slugs, to Destroy and Banish.—Neither snails or slugs will come near the soot of coal, or places sprinkled with the following composition:—Pour a gallon of boiling water upon four ounces of quicklime and six of sulphur.

Starch, Wheaten.—Beat the wheat in water with a wooden pestle, or something of the kind, till it becomes a pulpy and glutinous mass resembling bird-lime; washing it repeatedly with fresh portions of water. Let these different waters be put by and allowed to settle, and the starch will be found at the bottom. Pour off the liquid, and leave the starch in shallow trays to dry.

STARCH, POTATO.—Clean and peel some clear white potatoes: cut them up into small pieces, and beat them in the same manner as above, in water, and the starch will be found at the bottom, and may be dried in the same manner as the wheaten starch.

VARNISHES—Are solutions of different resins, in different proportions, in spirits of wine or oil, and are employed to protect paint, &c., from the action of the air. They are of different kinds, some hard, others soft; some adapted for out, and some for inside work; some for wood, some for paper, and others (in which case they are called lacquers) for metals. As a general rule, any kind of resin soluble in spirits or oil, and insoluble in water, is adapted for varnish. The resins usually employed are copal, mastic lac, gum juniper, gum sandarach, gum olibanum, resin, &c., and the menstrua, spirits of wine, spirits of turpentine, and linseed oil. The commonest kind of varnish is made by dissolving resin in spirits of turpentine; and this may be used for common inside work. For fine outside work, such as carriages, copal varnish is used. Any specific directions for making varnishes would be useless. The gums employed possess different degrees of hardness, and may be mixed in proportions according to the purpose for which the varnish is required.

GUM, COPAL.—Hard, transparent, and colourless. To dissolve it, first dissolve an ounce of camphor in half a pint of spirits of wine; add the gum in small pieces, put it into a Florence oil flask, with a cork having a groove cut in it, adapted to the neck. Heat it by immersing the lower part of the flask in an iron vessel full of sand; and let it boil so that you can count the bubbles as they rise. Do not take out the cork till the varnish is quite cold.

GUM, MASTIC.—Is hard, transparent, and nearly colourless. Soluble in rectified spirits.

GUM, LAC.—Not so hard as mastic; of a red colour; semi-transparent; soluble in spirits of wine. There are three kinds, seed, sheet, and tear lac.

GUM, JUNIPER.—About the same hardness; more transparent and colourless: soluble in spirits.

GUM, SANDARACH.—Very similar.

WASH, WHITE.—Washes are made by mixing whiting and water with a sufficient quantity of size to make them adhere to the surface of the wall. If you cannot procure size or glue, you may form a very good substitute in the following manner:—Peel and bruise some potatoes: pour boiling water upon them till you form a thick mixture: pass this through a fine sieve, and mix it with the wash.

WASH, WHITE.—Pour boiling water upon whitening, and stir

it up till it forms a thick cream. Then add a sufficient quantity of melted size, or of glue, dissolved in water.

WASHES, COLOURED.—*Yellow*, by adding yellow-ochre to white-wash, or by using ochre instead of whitening. *Blue*, by adding indigo, or powder blue. *Black*, by using lamp-black. *Green*, by a mixture of ochre and indigo with the white. The different shades of *Brown*, with purple brown, Spanish brown, and Venetian red; Roman umber, raw umber, &c.

CHAPTER VI.

Materia Medica.—Medicine-Chest.—Pharmacopœia.—Prescriptions.

If you settle at a distance from a town, you should prepare yourself to meet such cases of disease or accident as may occur to yourself or to the members of your establishment, not only by having a proper assortment of medicines, surgical instruments, &c., but by acquiring such a knowledge of the arts of medicine and surgery as will, to a certain extent, render you independent of professional assistance; as, however healthy a country may be, it will not be altogether exempt from disease, and certainly not from accidents; while you may not be able to obtain the assistance of a medical man without considerable trouble, delay, and expense, if at all.

I am aware that medicine-chests, adapted, or rather misadapted, for the use of different-sized families, may be procured ready-filled and arranged, but they rarely contain such an assortment of drugs as will be found useful; the object appearing to be, rather to fill a certain number of regular-sized bottles and jars, than to afford a supply of really useful medicines. Many things are included, that, if not altogether useless, are unnecessary, while the quantities of the really useful drugs are wofully deficient. It is of consequence to the emigrant that the contents of his medicine-chest should not only be selected with judgment, but in efficient quantities, for though it may fortunately happen that little medicine be required, he should be prepared lest a good quantity may. The following is a plan of what I consider an efficient medicine-

chest for a family of moderate extent, who may not have an opportunity of replenishing it for two or three years.

The medicines absolutely required are, emetics, purgatives, anodynes or narcotics, and tonics; and by a judicious management of these, you may produce febrifuges, diaphoretics, and diuretics. To these, however, to save confusion and the necessity for substitution, add a few more; together with a few preparations for external use.

1. IPECACUANHA.—You had better take this in powder, and in a well-closed bottle. It is a valuable *emetic* in doses of from 20 to 30 grains; its action being sometimes increased by the addition of a grain of tartar emetic. In doses of one grain it acts as an expectorant and relaxant, and, combined with opium, as a sudorific. Price about 1*s.* per oz. . . . . 2 oz. 0 2 0

2. TARTAR EMETIC, OR TARTRATE OF ANTIMONY—Is a triple salt, composed of antimony, tartaric acid, and soda. In doses of from 3 to 4 grains it is powerfully emetic: in ¼ grain doses, a sudorific and febrifuge; or, if the patient be kept cool, a diuretic. Price 1*s.* per oz. . . . 1 oz. 0 1 0

3. ANTIMONIAL WINE.—Medical properties the same as the tartrate; of which 1 oz. contains 2 grs. Price 3*d.* per oz. . . . . 8 oz. 0 2 0

4. SULPHATE OF ZINC—WHITE VITRIOL, PURIFIED.—A crystalline salt composed of sulphuric acid and zinc: in doses of from 15 to 20 grs. instantly emetic: in 2 or 3 grain doses, tonic. Dissolved in rose or pure water, in the proportion of 2 or 3 grs. to the oz., it forms a valuable eye-water; while in a larger proportion, it is a styptic. Price 2*d.* per oz. . . . . 4 oz. 0 0 8

Ipecacuanha is the mildest of these emetics, and may be given to children in the form of

5. IPECACUANHA WINE.—Of this, a child from three months to a year old may take 30 drops: from one year to two, 40 drops: from two years to four, 60 drops: from four years to six, 80: from six to ten, 120: from ten to fourteen, 160: from fourteen to eighteen, 3½ drs.; and after that, 4 drs.

Carry forward . £0 5 8

Brought forward .	£0	5	8
to 6 drs.—repeating the doses, as regards children under ten, every fifteen minutes, till it operates. Price 4*d.* per oz. . . . 8 oz.	0	2	8
6. CALOMEL.—Is a white powder, very heavy, and having neither taste nor smell. It is seldom given alone as a purgative, to prepare for, or with some other. Dose, as a purgative, from 3 to 10 grs.: as a mercurial, from ½ gr. to 2 grs., two or three times a-day. Price 8*d.* per oz. 2 oz.	0	1	4
7. CASTOR OIL.—Perhaps, of all purgatives, this medicine is the safest and the most generally useful. It may be given to children, to pregnant women; in short, in every case in which purgatives are admissible. It must, however, be kept in the cool, to prevent it from growing rancid. Dose, from ½ oz. to 1 oz. Price 1*s.* 4*d.* per lb. 2 lb.	0	2	8
8. JALAP.—A common, but very useful purgative. It must be kept quite dry, and in a well-stopped bottle. Dose, from 20 to 30 grs. Price 6*d.* per oz. . . . . 4 oz.	0	2	0
9. ALOES SOCCOTRINE.—A resinous extract, and very valuable purgative, particularly in some female complaints; but it must not be given where there is a tendency to piles. Its drastic effect is somewhat mitigated by mixing it with soap. Dose, 5 to 15 grs. Price 6*d.* per oz. . . 4 oz.	0	2	0
10. RHUBARB.—A valuable stomachic purgative, generally combined with some more active medicine. Dose, 20 to 30 grs. Price, 1*s.* per oz.; but inferior rhubarb may be had at almost any price. 2 oz.	0	2	0
11. TINCTURE OF RHUBARB.—A stomachic purgative. Dose, 6 drs. to 1 oz. . . 1 pint	0	3	6
12. SENNA LEAVES.—A useful addition to Epsom salts, but seldom given alone: generally used in the form of a tea, or tincture: for the former, see Infusion of Senna . . . 1 lb.	0	4	0
13. TINCTURE OF SENNA.—A warm purgative: seldom given alone, but added to the black dose to increase its strength . . . ½ pint	0	3	6
14. COLOCYNTH, COMPOUND EXTRACT OF.—A strong drastic purgative: useful in some cases of obstinate costiveness, where other less active medicines			
Carry forward .	£1	9	4

	Brought forward .	£1	9	4
	will not act; but must not be given where there is a tendency to inflammation. Dose, from 10 to 15 grs., generally combined with calomel	1 oz. 0	1	4
15.	EPSOM SALTS.—The indiscriminate use of this really valuable medicine does incalculable mischief. Properly employed, however, it is one of the most valuable of the class; but it must be kept in mind that a small dose dissolved in a large quantity of water, or other liquid, is equivalent to a large dose dissolved in a small quantity, without the chance of producing inflammation of the bowels—a result that sometimes follows its improper use. Dose, from 4 to 6 drs. .	7 lb. 0	2	0
16.	TARTRATE OF SODA.—A combination of tartaric acid and soda: milder in its operation than Epsom salts, and less nauseous: it forms the base of seidlitz powders. Dose, 2 to 4 drs. . .	1 lb. 0	2	0
17.	SWEET SPIRIT OF NITRE.—A diuretic and febrifuge. Dose, 3 drops to a drachm . .	½ pint 0	2	0
18.	TINCTURE OF DIGITALIS.—Acts as a sedative or diuretic, according to its combination. Dose, 15 to 30 drops	2 oz. 0	0	6
19.	NITRE.—A diuretic and febrifuge: used also for household and other purposes. Dose, 10 grs.	4 lb. 0	2	0
20.	CREAM OF TARTAR.—A diuretic or purgative according to its combination. Dose, 20 to 30 grs.: used in making ginger-beer, and for other purposes	1 lb. 0	1	4
21.	SALT OF TARTAR—SUB-CARBONATE OF POTASH.—A diuretic or febrifuge according to its combination: also an ant-acid. Dose, 5 to 6 grs. .	1 lb. 0	0	9
22.	CARBONATE OF SODA.—An alkali and ant-acid: a diuretic or febrifuge according to its combination: the alkaline base in soda and seidlitz powders	1 lb. 0	1	0
23.	MAGNESIA, CALCINED.—An alkaline earth: an ant-acid; and if it meets with acid in the stomach, a laxative. Dose, 10 to 20 grs. . .	4 oz. 0	1	0
24.	AMMONIA, CARBONATE OF.—A volatile alkali: ant-acid and stimulant: with distilled vinegar, forms the acetated solution of ammonia, or spirit of mindererus. Dose, 5 grs. . . .	¼ lb. 0	0	8
	Carry forward .	£2	3	11

	Brought forward £2	.	3	11
25. AMMONIA, SPIRITS OF—SPIRITS OF SAL VOLATILE.—A stimulus: given internally, in doses of from 30 to 50 drops, and used externally: mix with oil, as a rubefacient	½ lb.	0	2	0
26. ÆTHER.—The most powerful diffusible stimulus. Dose, 30 to 40 drops. Applied externally to the head to produce cold by evaporation	½ lb.	0	3	6
27. CAMPHOR.—A gum: the produce of the laurus camphora: a stimulant and cordial. Dose, 3 to 5 grs.	4 oz.	0	1	0
28. ESSENCE OF GINGER.—A stomachic stimulant. Dose, 3 to 5 drops in water . . .	4 oz.	0	1	0
29. ESSENCE OF PEPPERMINT.—A cordial. Dose, 5 to 7 drops	2 oz.	0	2	4
30. TINCTURE OF OPIUM—LAUDANUM.—Of all the medicines of this class (anodynes), opium, judiciously used, is the most valuable: though its abuse has, perhaps, done more injury than all the other medicines put together. It can seldom, if ever, be given when the skin is hot and dry, and the tongue furred; but where its use is admissible, it sometimes acts like a charm. Its dose varies according to the age of the patient, his susceptibility to its effects, and the nature of the disease. A quantity that, under certain conditions, is scarcely sufficient to meet the circumstances of the case, would, at other times, cause considerable danger, if not death: 80 drops have, to my knowledge, proved fatal to an adult; unless, therefore, prescribed by a medical man, or the patient be in the habit of taking it, the dose, except under very peculiar circumstances, should be limited to that. Dose, 25 to 60 drops.	¼ pt.	0	3	0
31. OPIUM, POWDERED.—Effects the same as the laudanum. Dose, 1 grain to 3 . . .	½ oz.	0	1	6
32. OPIUM, WATERY EXTRACT OF.—Will sometimes remain upon the stomach when all other forms of the medicine are rejected. Dose .	½ oz.	0	2	6
33. TINCTURE OF HYOSCYAMUS.—Used for the same purposes as laudanum, and will sometimes agree when opium affects the head. Dose, 20 to 4 drops . 2 oz.		0	0	6
Carry forward .		£3	1	3

	Brought forward .	£3	1	3
34.	COMPOUND TINCTURE OF CAMPHOR — PARAGORIC ELIXIR.—A sudorific. Dose, 1 dr. to 4 drs. ½ pt.	0	1	9
35.	SULPHATE OF QUININE.—A valuable tonic, prepared from the Peruvian bark. The best, which is prepared in France, is a white feathery-looking powder, having an intensely bitter taste and no smell. Dose, 1 gr. to 4 . . . ¼ oz.	0	4	0
36.	SULPHATE OF IRON.—A tonic: useful in some female complaints; but the dose should be very small at first, very gradually increased, and always combined with a sufficient quantity of aloes (in the complaints alluded to) to produce one motion daily. As it is also one of the ingredients in ink you had better take a good supply. Dose, ½ to 2 grs. . . . . 1 lb.	0	1	0
37.	COLUMBA, GENTIAN, AND QUASSIA.—These light and cheap tonics may occasionally be found useful, and had better form part of your medicine chest. ½ lb. of each	0	1	6
38.	OPODELDOC—SOAP LINIMENT.—A useful embrocation . . . . . ½ lb.	0	1	9
39.	SULPHURIC ACID.—Occasionally used, in a diluted state, as a gargle, and for some domestic purposes: it forms an ingredient in blacking . 2 lb.	0	0	8
40.	PYROLIGNEOUS ACID.—Diluted, forms the distilled vinegar of the shops, and is used for some domestic purposes . . . . . 1 lb.	0	2	0
41.	SPIRITS OF WINE.—Used as a menstruum for the different tinctures, and is a useful addition to some lotions . . . . . 1 lb.	0	3	0
42.	SPIRITS OF TURPENTINE.—Mixed with yellow basilicon, forms the liniment for burns and scalds 1 lb.	0	1	2
43.	LEAD, SUPERACETATE OF—SUGAR OF LEAD.—Dissolved in water, forms goulard; used as an external application . . . . . 4 oz.	0	0	6
44.	RED PRECIPITATE.—Used as a stimulating application to wounds, &c., and to destroy lice, &c. 2 oz.	0	1	0
45.	LINSEED MEAL.—Used as an outward application in the form of a poultice . . . . 4 lb.	0	1	0
46.	WHITE WAX.—Employed in making spermaceti ointment . . . . . ½ lb.	0	1	6
	Carry forward .	£4	2	1

	Brought forward .	£4	2	1
47. YELLOW WAX.—One of the ingredients in Turner's cerate, and yellow basilicon ointment .	½ lb.	0	1	0
48. SPERMACETI.—One of the ingredients in spermaceti ointment	½ lb.	0	1	6
49. RESIN.—Used for a variety of purposes .	1 lb.	0	0	3
50. OLIVE OIL.—Used in ointments and enemas	1 lb.	0	1	0
51. CROTON OIL.—The most powerful purgative we possess. It will act when all others fail; and is one no emigrant should be without. Dose, 1 drop to 3	½ oz.	0	2	0
52. SPIRITS OF HARTSHORN.—A stimulant: used for the same purposes as sal volatile. Dose, 30 to 40 drops	1 lb.	0	0	8
53. NUT GALLS.—One of the ingredients in ink and black dyes, and used in Ward's paste .	1 lb.	0	1	6
54. PHOSPHORUS.—The only *certain* means of obtaining fire. Must be kept in water . .	½ oz.	0	2	0
55. TINCTURE OF MYRRH.—Used as a styptic, and diluted, as a lotion for the mouth .	8 oz.	0	2	0
56. CHLORIDE OF LIME.—Used to make the disinfecting solution	1 lb.	0	0	6
57. BLISTERING PLASTER . . .	¼ lb.	0	1	6
58. ADHESIVE PLASTER.—Spread on linen, forms strapping	½ lb.	0	0	8
59. DYACHELON.—Used as corn plaster .	½ lb.	0	0	8
60. SKIN OF LEATHER.—To spread plasters upon .		0	1	3
61. SPERMACETI OINTMENT . . .	½ lb.	0	1	6
62. YELLOW BASILICON	½ lb.	0	1	0
63. TURNER'S CERATE	½ lb.	0	1	0
64. LINT	½ lb.	0	1	9
65. CAUSTIC.—Used to destroy proud flesh, and to make permanent marking ink . . .	½ oz.	0	2	6
66. PREPARED CHALK.—An absorbent .	1 lb.	0	0	6
		£5	6	10

You may fit up an efficient medicine chest at comparatively a small cost, if you are content to substitute

Carry forward .		£5	6	10

	£	s	d
Brought forward .	£5	6	10

green bottles for white, and a strong deal box for brass and mahogany. You will require—

Twelve square green stopper bottles: pints .	0	8	0
Twelve do. do. ½ pints .	0	6	0
Fourteen do. do. 2 oz. .	0	6	0
Twelve do. do. wide mouth with covered corks (pints)	0	3	0
Twelve do. do. ½ pints .	0	2	6
Eight brown jars with tin covers: 1 lb. .	0	6	0
Four do. do. 2 oz. .	0	2	0
One small pestle and mortar, 2*s.* 6*d.*, and one large ditto, 5*s.*	0	7	6
A pair of grain scales and weights: a pair of lb. scales and weights	0	10	6
One small and one large pill knife . .	0	1	6
One plaster spatula	0	2	0
One 2 oz. and a drop graduated measure .	0	3	6
One pill slab, 1*s.*, and two funnels, 1*s.* . .	0	2	0
A box made and divided according to the following plan	2	5	0
	£10	11	4

This may appear a large sum for medicine; but you cannot have a really efficient medicine-chest at less expense; and it must be remembered, in preparing for expatriation, that you may not be able to replenish your stock without considerable trouble and inconvenience.

Many of the things contained in this list will come into use for domestic purposes;—such as sulphuric acid, turpentine, carbonate of soda, green vitriol, cream of tartar, galls, prepared ginger, olive oil, &c. &c. The following diagrams will show the arrangement.

No. I.

A Box 26 inches long in the clear, 17½ inches wide, and 18 inches deep. The divisions to be 6 inches high, and fitted with a drop lid.

LOWER DIVISION.

Gentian, Columba, Quassia, &c.	Large Scales.	Senna.
	Funnel. Funnel.	
Resin—Wax.	Pestle and Mortar.	Epsom Salts.
	Measure. Measure.	
Various.	Lint, Plasters, Leather.	Linseed Meal.

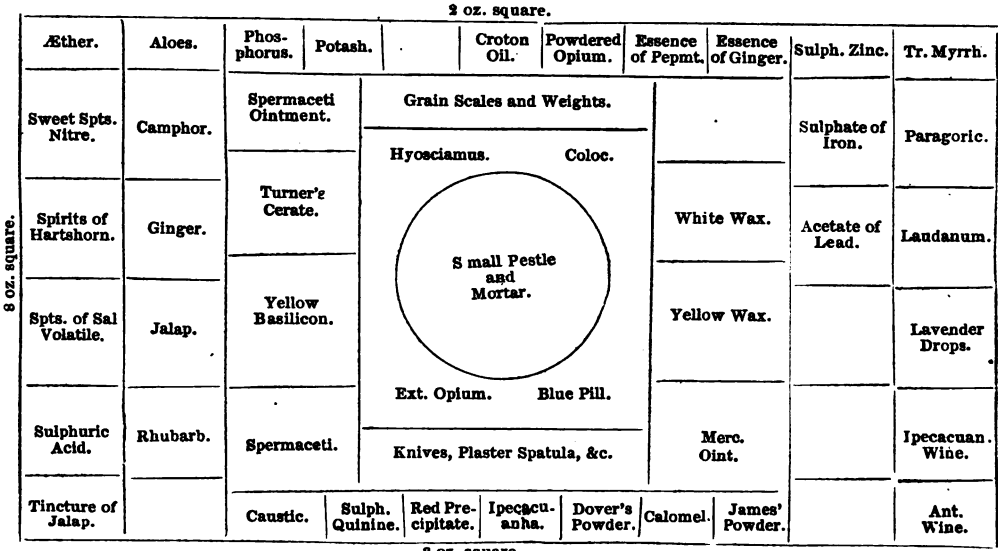
No. II.

A Tray 26 inches long, 17½ wide, and 6 inches deep.

LOWER TRAY.

Castor Oil.	Magnesia, Carbonate.	Carb. Soda.	Tart. Soda.	Calamine.	Castor Oil.
Tinct. Rhubarb.	Prepared Chalk.	Salt Tartar.	Cream of Tartar.	Tartaric Acid.	Pyrol. Acid.
Olive Oil.	Nut Galls Powdered.	Nitre.	Calcined Magnesia.	Sulphur.	Spirits of Wine.
Opodeldoc.		Chloride of Lime.	Ammonia.		Sp. Turpentine.

A Tray, 26 inches long, and 17⅛ wide, and four deep.



MEDICINE-CHEST.

DOMESTIC PHARMACOPŒIA.

1. Decoction of Aloes, Compound.—Beaume de Vie.—Salt of tartar, aloes, myrrh, saffron, and caraway seeds, of each a drachm: Spanish liquorice, three drachms. Boil in sixteen ounces of water to twelve. Strain, and add four ounces of compound tincture of cardamums. Dose, half an ounce to an ounce.
2. Decoction of Barley—Barley Water.—Boil two ounces of barley in half a pint of water for five minutes, and strain. Add four pints of fresh water, and boil down to two.
3. Decoction of Bark.—Boil one ounce of bruised bark in a pint of soft water for ten minutes, in a slightly-covered vessel, and strain while hot.
4. Infusion of Columba.—Columba root, sliced, one drachm: boiling water, half a pint. Infuse for two hours, and strain.
5. Infusion of Gentian.—Gentian, sliced, one drachm; orange-peel, dried, one drachm; lemon-peel, fresh, two drachms; boiling water, one pint. Infuse two hours, and strain.
6. Infusion of Linseed.—Linseed Tea.—Linseed, one ounce; sugar-candy, one ounce; boiling water, two pints. Macerate for four hours in a warm place, and strain.
7. Infusion of Senna—Senna Tea.—Senna-leaves, one ounce and a half; ginger, sliced, one drachm; boiling water, one pint. Macerate for two hours, and strain.
8. Liniment of Ammonia.—Hartshorn and Oil.—Mix one ounce of hartshorn and two ounces of olive oil; used as an outward application for sore throat, &c.
9. Liniment Soap, Opodeldoc.—Hard soap, three ounces; camphor, one ounce; oil of rosemary, one drachm; spirits of wine, one pint. Digest till the soap and camphor are dissolved.
10. Liniment Turpentine.—Melt two ounces of yellow basilicon ointment, and, while hot, mix one ounce of spirits of turpentine. Used for burns and scalds.
11. Mixture, Camphor.—Camphor, Julep.—Camphor, half a drachm; spirits of wine, ten drops. Rub together, and add water one pint: filter through paper.
12. Mixture, Chalk.—Chalk, four ounces; sugar, two drachms; gum arabic, one drachm. Rub together, and add gradu-

ally a pint of water and one ounce of brandy. Dose, one ounce or more.

13. Solution of Ammonia, Acetated.—Add gradually half a drachm of carbonate of ammonia to half a pint of distilled vinegar. Dose, half an ounce to six drachms.

14. Solution of Potash.—Oil of Tartar.—Pour two pints of boiling rain water on four ounces of salt of tartar, and six pints on eight ounces of lime. Mix while hot; and when cold, filter through calico.

15. Spirits of Camphor.—Dissolve two ounces of camphor in half a pint of rectified spirits of wine.

16. Syrup of Ginger.—Macerate two ounces of sliced ginger in a pint of boiling water for twelve hours. Strain, and add two pounds of lump-sugar, and boil to a syrup.

17. Syrup of Lemon.—Simmer one pint of lemon juice and two pounds of sugar together till they form a syrup: a little added to water forms a pleasant drink in fevers.

18. Tincture of Camphor, Compound. — Paragoric. — Digest twenty grains of camphor, one drachm of opium, and one drachm of Benzoic acid, in a pint of proof spirit for seven days, and filter. Dose, one to four drachms.

19. Tincture of Myrrh.—Digest two ounces of bruised myrrh in a pint of rectified spirit for fourteen days, and filter.

20. Tincture of Opium.—Laudanum.—Digest one ounce and a quarter of dried and coarsely-powdered opium in one pint of proof spirits for fourteen days, and filter.

21. Tincture of Rhubarb.—Rhubarb, sliced, one ounce; ginger, sliced, two drachms; or cardamum seeds, bruised, two drachms; proof spirit of brandy, one pint. Digest fourteen days, and filter.

22. Tincture, Stomachic.—Gentian, sliced, half an ounce; orange-peel, dried, one ounce; ginger, sliced, half an ounce; cardamum seeds, bruised, half an ounce; rhubarb, sliced, half an ounce; brandy, two pints. Digest fourteen days, and filter.

23. Tincture of Senna.—Senna, coarsely powdered, one ounce and a half. Dose, one ounce. Caraway seeds, bruised, one drachm and a half; ginger, two drachms; proof spirit or brandy, one pint. Digest fourteen days, and strain. Dose, one ounce to two ounces.

24. Tincture of Bark.—Digest three ounces of bruised bark in a pint of proof spirit or brandy for fourteen days, and filter.

25. WINE, ANTIMONIAL.—Dissolve twenty grains of tartar emetic in eight ounces of boiling rain water, and add two ounces of spirits of wine.

26. WINE, IPECACUANHA.—Digest one ounce of bruised ipecacuanha in a pint of sherry wine for fourteen days, and filter.

27. CERATE, SPERMACETI.—Spermaceti, one ounce; white wax, an ounce and a half; olive oil, four ounces. Melt together, and stir till cold. If you cannot procure olive oil, use eight ounces of lard to the same quantities of spermaceti and wax; but as this ointment soon becomes rancid, it should be made in small quantities, and kept in a cool place.

28. CERATE, RESIN.—Yellow basilicon. Melt together one pound of yellow wax, one pound of resin, and one pound of olive oil, and stir till cold.

29. CERATE, CALAMINE.—TURNER'S CERATE.—Melt together half a pound of yellow wax and one pound of olive oil; and, when nearly cool, add, gradually, half a pound of prepared calamine, finely powdered.

30. OINTMENT, ITCH.—Lard, sulphur, each half an oz.; salt of tartar, four ounces; powdered white hellebore, two ounces. Mix intimately together.

31. OINTMENT FOR PILES.—WARD'S PASTE.—Powder half a drachm of camphor by adding five drops of spirits. Rub this well with six ounces of lard, and then with one ounce of powdered galls.

PRESCRIPTIONS ADAPTED FOR DOMESTIC USE.

1. OPENING MIXTURE.—BLACK DOSE.—Digest one ounce and a half of coarsely powdered senna and one drachm of sliced ginger in a pint of boiling water for four hours: strain it, and add four ounces of Epsom salts and two ounces of brandy. Dose, four or five tablespoonsful.

2. OPENING MIXTURE.—Tartrate of soda, half an ounce; powdered rhubarb, one drachm; essence of peppermint, five drops; water, six ounces; tincture of rhubarb, one ounce. Dose, a fourth part.

3. OPENING MIXTURE.—Rub the yolk of an egg with two ounces of castor oil: add gradually three ounces of soft water, half an ounce of sugar, and a tablespoonful of brandy. Dose, one-third every two hours till it operates.

4. Opening Pills.—Extract of colocynth, twelve to fifteen grains; calomel, three to five grains. Make into four pills for a dose.

5. Opening Antibilious Pills.—Aloes, one drachm; soap, half a drachm; calomel, six grains. Make into twenty pills, two or three to be taken occasionally.

6. Opening Dinner Pills.—Rhubarb, one ounce; salt of tartar, half a drachm; ipecacuanha, five grains; essence of ginger, twenty drops. Make into twenty pills, three or four to be taken every day one hour before dinner.

7. Opening Powder.—Jalap, cream of tartar, each twenty to twenty-five grains; ginger, five grains. Mix for a dose.

8. Emetic Draught.—Ipecacuanha, twenty grains; tartar emetic, one grain; water, one ounce: a dose.

9. Saline Draught.—Acetated solution of ammonia, four to six drachms; antimonial wine, twenty drops; water, one ounce. Mix for a dose.

10. Saline Draught.—Subcarbonate of soda, twenty grains; water, one ounce. When taken, to be mixed with a table-spoonful of lemon juice, or sixteen grains of tartaric or citric acid dissolved in a little water.

11. Cough Pills.—Ipecacuanha, twenty-four grains; opium, four grains; bread-crumbs sufficient to make twenty-four pills: one to be taken three times a-day.

12. Sudorific Pills.—Camphor, twenty grains; opium, four grains; ipecacuanha, four grains. Make into four pills with paragoric elixir: one, a dose.

13. Diuretic Powders for Gravel.—Salt of tartar, three grains; carbonate of soda, ten grains; nitre, four grains. Mix for a dose: to be taken an hour after each meal.

14. Purgative Clyster.—Dissolve an ounce of Epsom salts in a pint of gruel, and add an ounce of olive oil.

15. Purgative Emollient Clyster.—Mutton broth, one pint; castor oil, an ounce. Mix.

16. Turpentine Enema.—Rub one ounce of turpentine with the yolk of an egg, and add a pint of gruel (just warm).—Employed to destroy worms, &c.

17. Aloes, and Lime Enema.—Rub twenty grains of aloes very gradually with half a pint of lime water.—Used to destroy ascarides.

18. Embrocation for Chilblains.—Digest one drachm of blistering plaster in two ounces of turpentine for three days: pour off clear, and add four ounces of brandy or spirits of wine, in which an ounce of camphor has been dissolved.

19. Cooling Lotion.—Dissolve half a drachm of acetate of lead in a pint of soft water.—To be kept constantly applied.

20. Cooling Lotion.—Sal ammoniac, half an ounce; common salt, half an ounce; nitre, two drachms; water, two pints.

21. Collyrium (Eye-Water.)—Acetate of lead, ten grains; sulphate of zinc, ten grains; rose or filtered rain water, four ounces. Mix: let it settle, and pour off clear.

22. Styptic Lotion.—Sulphate of zinc, ten grains; water, an ounce.

23. Styptic Lotion.—Alum, ten grains; water, an ounce.

CHAPTER VII.

Minor Operations.—Bleeding.—Cupping.—Extracting Teeth.—Lancing Gums.—Incised Wounds.—Incised Wounds, with Hemorrhage.—Lacerated Wounds.—Contused Wounds.—Bruises.—Burns and Scalds.—Piles.—Falling down of the Rectum.—Varicose Veins.—Corns and Bunions.—Injuries to the Eye.—Injuries to the Ear.—Injuries to the Nose.—Chilblains.—Chaps.—Bites of Rabid Animals, Snakes, &c.—Stings of Insects, Mosquitos, Bees, Wasps, Flies, &c. &c.

WHEN it is considered how much pain and danger might be saved, by the power of performing the minor operations of surgery being more generally diffused, and how frequently even the life of a patient depends upon his being immediately cupped or bled, it is astonishing that amongst so many who, from their position in society, might afford the means and acquire the knowledge necessary, so few are found who will take the very little trouble requisite to do so. The fact is, that many persons who will give money, start at trouble, however trifling. In this country, where surgeons are as plentiful as blackberries, such a power might occasionally be employed with advantage; but in a colony, where professional assistance may not be attainable, it becomes a positive duty that every person of intellect and education, who chooses to emigrate, should make himself competent to manage those cases of emergency, in which immediate relief is essential to the safety of the patient; and to do this, he must be able to perform the operations of bleeding and cupping.

I have given instructions for one or two operations on the teeth and gums, because, although the necessity for their performance does not, in general, involve any danger, they are

extremely easy, and the power of doing them may save considerable pain and annoyance, while the necessary instruments are neither numerous nor expensive.

Every family that can possibly afford it, should possess a stomach pump; as independently of its use as a lavement machine, to which purpose it is also adapted, it might, by being ready for the use of a medical man, in a case of danger, save much time and risk. Directions for its use are sold with it, and there can be no reason why, in a case of emergency, its use should not be attempted by any person of common tact.

The following list includes all the instruments necessary for the minor operations of surgery, and such common accidents as may be safely trusted to domestic treatment. In giving the prices of the different instruments, I have allowed for those of the best kind, without any unnecessary or useless frippery.

	£.	s.	d.
Two lancets, in a leathern (Morocco or Russia) case	0	5	0
Tooth instruments: A key instrument (Fox's)	0	12	0
Tooth instruments: A pair of straight and a pair of curved forceps	0	5	0
Tooth instruments: A pair of Cartwright's do.	0	4	6
Tooth instruments: A gum lancet, 2s. 6d., a punch, 2s.	0	4	6
Tooth instruments: A Russian leather-case	0	4	0
A set of scaling instruments in case	1	0	0
A patent scarificator with extra lancets, and set for temples	3	5	0
Eight cupping glasses, nested	0	9	0
A brass cupping lamp—spout, three-quarters of an inch diameter	0	3	6
A stopper bottle for spirits, and two sponges	0	2	6
A case, either mahogany or leather	0	7	6
A case, with spatula, forceps, scissors, tenaculum, needles, and abcess lancet	1	0	0
	£8	2	6

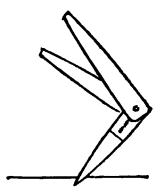
Of these the scaling instruments are certainly not absolutely necessary, and by having a common, instead of a patent scarificator, the expense of the cupping instruments will be reduced £1 10*s.*; this will bring the amount to £5 12*s.*, to which you may add £2 15*s.* for a stomach pump, making

altogether about £8 8*s.*, a sum you will soon compensate in security, if not in absolute saving.

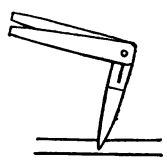
BLEEDING.—To perform this operation you will require a lancet, a piece of tape or ribbon about two yards long, a basin to receive the blood, a pledget of lint or linen, a basin of water and a sponge. Having these things in readiness, strip the arm, taking care that nothing ligatures the upper part, for I have known considerable inconvenience from a shirt rolled up, or a woman's gown, pressing upon the vein, and by preventing the return of blood to the heart, rendering it difficult to stop its flow. The right arm is the most convenient to operate upon, and the middle vein is generally selected for the purpose, before, however, you bind up the arm, place your finger upon the vein you intend to open, and if you feel an artery pulsate immediately beneath or close beside it, select another, or you may wound the artery, and thus produce a communication between it and the vein, an accident by no means desirable. Place the arm in a natural position, or after you have made your incision, the skin may slip over the orifice in the vein, and part of the blood, instead of flowing out, be diffused between the cellular substance and the skin, forming a tumour of lesser or greater magnitude. This accident occurs more frequently in bleeding old people and others, whose skins are loose, and cannot always be avoided by the best surgeon.

You now bind the tape round the upper arm, about two inches from the bend, so tight as to impede the return of blood to the heart, but not to stop the pulse at the wrist; this will make the vein swell and become more conspicuous. Open your lancet so that the scales or handle form an angle of about forty-five degrees with the blade, holding it between the finger and thumb of your right hand. Grasp the arm with your left, so that your thumb may press upon the vein about two inches below the intended orifice, and make an incision into it, not by digging the lancet in as if pricking at

a board, nor by plunging it in, reckless of where it may go, but *pass* it into the vein, and carry it obliquely forwards to the extent of the required orifice, as if you wished to make a slit in the upper section of a quill, without wounding the lower part of the circle. Having made the incision, do not turn your lancet out by raising the point, or you may wound the lower part of the vein with the shoulder, but withdraw it;



The proper position of the lancet in bleeding.



The lancet held too perpendicularly: by which it will be seen that if the integuments are *thick*, the orifice in the vein will be very small; and if *thin*, that there will be danger of transfixing the vessel.

remove your thumb, and the blood will flow into the basin held to receive it. Having taken away a sufficient quantity of blood, your next business is to bind up the arm. Grasp the arm with your left hand, placing your thumb firmly upon the vein, and drawing it slightly downwards, which will bring the lips of the cut into opposition. Untie the bandage, and throw it over the shoulder, while you sponge the arm in the direction of the incision; place a pledget of lint or linen over the wound, bind it down by crossing and recrossing the tape above and below the elbow, in the form of a figure of eight, tie it, and the operation is complete.

The accidents that may happen in bleeding are—

The wounding an artery: this usually arises from opening a vein either over or very near to an artery,—more superficial than usual. It is shown by the blood being of a florid red colour, and thrown out *per saltum*, or by jerks. The latter appearance, however, is by no means a certain criterion, as it

takes place if the vein be situated immediately over an artery. To avoid this accident, take care not to open a vein immediately under or close to which an artery is felt to pulsate.

The transfixing a vein. This accident can only arise from carelessness; it is discovered by the blood being effused among the cellular substances, but it is sometimes not found out till some time after the operation. Tolerably firm pressure upon the vein is the only means of remedying it.

Ecchymosis.—This consists in an effusion of blood between the cellular substance and the skin, and is caused by the skin slipping over the wound in the vein; directly it is discovered bind up the arm, and open a vein in the other. It occurs most frequently in bleeding old people, and others whose skins are loose, and may be avoided by taking care that the arm is in a natural position when the incision is made, and keeping it so during the flow of the blood.

Wounding the tendon of the biceps flexor cubite. This accident can only take place from carelessness in letting the lancet cut too deep. It sometimes produces very serious consequences, and occasionally a permanent contraction of the arm.

The wounding a nerve. The most skilful operator cannot always avoid this accident, as it is impossible to tell the distribution of the cutaneous nerves.

Thus, though there are five accidents that may occur in bleeding, there are only two of any serious consequence; and those can only occur from want of caution. Of the other three, two may be guarded against, and the other is as likely to occur to the most skilful as to the most unpractised operator. I have alluded to them because, though they may startle a timid person, the knowledge of them will produce that caution which will prevent their occurrence.

Cupping.—The apparatus required for this operation are kept by the surgeons' instrument makers, arranged in convenient morocco or mahogany cases. They consist of a

scarificator, a spirit lamp, cupping glasses, a bottle for spirits, and a sponge. Cupping glasses adapted to an exhausting syringe or to exhausted globes, are also to be met with; and perhaps, they might be more easily managed by unaccustomed operators than the common ones, but they are expensive, and the valves are very likely to get out of order. Cups made of pewter, with a piece of glass let into the top, are certainly adapted for situations where breakages are not easily replaced.

The object of cupping is to obtain a certain quantity of blood from some particular part as quickly as possible. To accomplish this purpose, you produce a determination of blood to the part by removing the pressure of the atmospheric air; make a number of incisions by means of the scarificator, and lastly, promote the flow of blood by again removing the pressure of the air. Now it is not necessary to the usefulness of the operation, that it should be performed with the dexterity of a Mapleson; the object is to get the blood with tolerable expedition, and if that be accomplished, the spilling a little blood, or the failure in putting on a glass at the first attempt, may be forgiven. I shall describe the operation as performed upon the back, the most usual place.

Operation.—The most convenient position for your patient to be in is, seated in a low-backed chair, with the shoulders a little bent forward. Have a table on his right hand, on which your instruments, &c., are to be placed; I find the follow-

Represents the position of the glass, lamp, &c., in fixing the glasses: *a* the part to be cupped, *b* the glass, *c* the lamp.

ing arrangement the most convenient. A basin of hot water at the end nearest the patient, and a basin for the blood at the one opposite, a lighted candle in the middle on the right hand, and your glasses, scarificator, and lamp, in the middle nearest to yourself. Take care to expose a sufficient surface, or you will be embarrassed for room; and put a napkin between the back and the dress, letting part of it fall over the outside: this will protect the clothes from any blood that may be spilled. You now put as many glasses as you intend to use into the basin of hot water; take one out, let it drain a moment, and then, having lighted your lamp, (previously trimmed with spirits, and having the wick sufficiently expanded for the flame to fill the sized glass you are using,) hold the glass in a slanting direction over the part to be cupped, pass the flame into it for a moment, and close it down. If the glass be properly applied, the flesh within its circle will begin immediately to swell, and you proceed in the same manner with the others; by the time you have applied the last, the flesh within the first will be ready for the scarificator, and you proceed in the following manner. Grasp the glass in your left hand, passing the forefinger over it; insert your nail between the skin and the edge of the glass, this will admit the air and it will easily come off. The moment you have taken off the glass apply the scarificator, (which you must have set by pulling the trigger back,) do not press it down, as if taking the impression of a seal, but let it off the instant it touches the part, as if you wished to give a slap upon the back; immediately re-apply the glass, and proceed in the same manner with the remaining glasses. When the glasses are as full of blood as you can conveniently remove, you take them off one at a time and re-apply them. To do this you will probably be obliged to use both hands:—admit the air as before, and raise the upper edge of the glass very gradually, keeping its lower edge pressed against the flesh, and holding a sponge under it and close to the flesh, to catch any blood

that might otherwise run over. If you do this carefully, the blood will gravitate into the glass, and little, if any, be spilled about: remove and re-apply the glasses, till you have obtained as much blood as you require. The operation being over, sponge the back, and either draw the cuts together, with a strip of adhesive plaster or gold-beater's skin, or apply a piece of dry linen to the part.

The patent scarificators are by far the best, particularly for inexpert cuppers; as by their cutting in opposite directions the skin is kept distended, while the others, the lancets of which cut in the same direction, are apt to slip, and produce ragged and indecisive cuts. If you do not object to the expense, you had better have a small scarificator for the temple or other parts, for which another might be too large*.

Lancing Gums.—Some children suffer considerably during the period of dentition or teething, when even convulsions are of by no means uncommon occurrence. If a child is hot and feverish, and the head much affected, do not wait for convulsions; but if the gums are very red and swollen, endeavour to lessen the irritation by lancing them. There is neither danger nor difficulty in performing this operation, which is much less painful than rubbing the gums with lump sugar, and a variety of other expedients, the resort of nurses to accomplish the same purpose in a roundabout manner. The operation consists in cutting through the gum down to the tooth, with either a gum lancet, or if you have not that, a pen-knife; if you use the latter, bind a piece of narrow tape round the blade, to within a quarter of an inch of the end.

The Teeth.—Operations upon the teeth require mechanical tact, rather than surgical knowledge, and may be easily performed by any person possessing an average share of dexterity.

* It may seem ridiculous to give such minute directions, but you will never perform the operation with facility unless you have your apparatus arranged in a convenient manner.

Perhaps no pain is more excruciating than the tooth-ache, and when it is considered that the removal of a tooth involves no danger, and scarcely any difficulty, it is surely worth the while of every person likely to be at a distance from surgical assistance, to acquire the power of performing the necessary operations. The instruments required are by no means expensive, and are contained in a small compass. They consist of a key-instrument, forceps, gum lancet, &c.,—see list of instruments. The front teeth, or incisors, are generally taken out by means of the forceps. The molares, or double teeth, with a key-instrument, or Cartwright's forceps. The use of the two latter instruments, though rather more difficult, may be easily attained by any person of common tact. The punch is used for the removal of stumps, and such teeth as are too much decayed to afford a purchase to the other instruments.

A coronet of spongy bone, called the alveolar process, runs round the upper part of the lower, and the lower part of the upper jaw, embracing the necks of the teeth. In extracting the double teeth, this bone is always more or less fractured, and it is in some cases so identified with a tooth by ossification, that you can scarcely remove the one, without taking away a portion of the other with it. This accident is sometimes unavoidable, and rarely of any consequence, but it has given rise to an idea of the jaw bone being broken.

To extract one of the front teeth, grasp it as low down and as firmly as possible with the forceps, and with a slight motion backwards and forwards, draw it downwards if in the upper, and upwards if in the lower jaw. It is scarcely necessary to lance the gums in taking out one of these teeth.

When one of the molares, or double teeth, is to be taken out, you first adapt a proper-sized claw to a key instrument, and wrap a piece of lint or linen round the bolster, so as not to interfere with the action of the claw. The point of the claw must, of course, be on the side *from* which you draw the tooth. You now lance the gum quite round, and com

pletely down to the alveolar process; then hold the instrument in your right hand, your fore-finger passing along the stem, so that you may be able to manage the claw with it; place the claw over the tooth, low down, so that the bolster or fulcrum may be at a sufficient distance; while doing this, you keep the tongue out of the way with the fore-finger of your left hand, which you may make available in fixing the instrument. Extract the tooth by turning the wrist to the right or left, as the case may be, giving it at the same time a movement upwards. In extracting the upper teeth, you will find it more convenient to stand behind and above the patient, his head resting between your knees. Keep in mind that your object is to draw out the tooth with the least possible injury to the alveolar process,—the spongy bone before mentioned. Remember that if the claw and bolster are placed opposite each other, you cannot extract the tooth. The claw should be of such a size, that when the instrument is fixed, the bolster may come just below the junction of the alveolar process with the jaw. If it be too large, the action of the instrument will be too lateral, and produce unnecessary injury; while if it be too small, the lever and the fulcrum will be so near to each other that you will not extract the tooth at all. If the tooth does not come out with a fair degree of force, you may depend on it that the instrument is not properly fixed; as, if it is so, a child might, in nine cases out ten, perform the extraction.

From some more than usual curve in the fangs, it may happen that a tooth cannot be safely taken out with one pull as it is called; in such a case, you will find it a safer way to shift the claw, and finish the operation on the other side, rather than use any unnecessary violence; or you may be able to finish its extraction with the forceps.

The next instrument I shall speak of is the punch. This is used to take out stumps, and teeth too much decayed to

afford a purchase to the forceps or the key instruments. The method of using it is this: lance the gum well down, so as to expose as much of the tooth or stump as possible, then insert the points of the instrument into the tooth, as low down as you can manage, and, as it were, lift it out by depressing the wrist. While doing this, you must guard the mouth and the opposite cheek by interposing a finger or two of the left hand, wrapped in a napkin, making them serve to assist you in the management of the instrument. This operation is by no means a difficult, and if properly performed, anything but a painful one.

SCALING—can scarcely be considered as an operation, or if so, it is one that any person may perform, as it involves neither pain nor danger. The teeth are occasionally partially covered with a hard kind of crust or fur, which accumulates more particularly at the back parts, and on their interstices; and the removing this, by means of a set of instruments adapted to the purpose, is called scaling.

These instruments may be obtained fitted to one handle, but so little expense is saved, and so much inconvenience caused by this arrangement, that you will find it scarcely worth your while to adopt it.

They are in the various forms of a triangle, a heart shape, a square, and an oblong, and one or two are curved, to be more convenient for the back of the teeth. If you operate upon yourself, which you may easily do, you must be provided with a dentist's glass, which will cost three or four shillings.

No specific directions can be given for this operation; the object is to remove the fur or tartar, without injuring the enamel of the teeth; and if you break the surface it will frequently come off in large pieces, and by following a beginning made in this manner, you may remove all the extraneou matter without using the slightest degree of force. Remember that you not only run less risk of injuring the teeth, but

remove the tartar more effectually, in proportion to the delicacy with which you use the instruments. Where the gums have retracted, and the teeth are loosened by the scurvy, you must be particularly cautious; I have more than once seen a tooth nearly hooked out, by endeavouring to disengage the triangular scraper, fixed too deeply.

WOUNDS.

These accidents are likely to be of frequent occurrence in a colony, where people may be obliged to use tools, &c., to which they may have been unaccustomed, while surgical assistance will not be obtainable with the same facility as in London, where every twentieth house displays a coloured lamp; so that the colonist will be thrown upon his own resources.

Incised Wounds.—By an incised wound or cut, is meant the division of some of the soft parts of the body, by means of a cutting instrument; and unless very extensive, or involving the division of an artery or tendon, an injury of this kind can scarcely require professional assistance.

The object of their treatment is to place their lips close together, and retain them so, till they have grown together, surgically speaking, healed by the first intention; and this may be accomplished, unless in some peculiar situations, by means of adhesive plaster, assisted by bandages alone.

If a wound is in the *course* of the muscles, there will be no difficulty in bringing the lips together, but if it be *across* them, the case will be different, and you must be particular to place the limb in such a position that they are relaxed, and retain it so by means of bandages. This will be even more necessary if a tendon be divided. The treatment of a wound of this description is simply this: clean away any extraneous matter, if such there be, bring the lips accurately together, and place strips of adhesive plaster to retain them

so; then, if it be of any size or depth, pass a roller moderately tight round the limb, in such a manner that not only the surface, but the lower part of the wound may be kept in opposition. If the wound be across the fibre of the muscle, the limb, as before observed, must be placed in such a position as will bring the divided parts together, and kept so by means of bandages, and any other mechanical means that may suggest themselves.

A certain degree of increased action is necessary to the process of healing, and unless this is exceeded, the wound will probably require no further interference, but if the inflammatory action exceeds this point, instead of healing, the edges will retract from each other. If then the part throbs violently, and is red and inflamed, loosen the bandages a little (for it may depend upon their being too tight) and wet them occasionally with cold water; give an efficient dose of opening medicine, and if the patient be feverish, let him take ten or fifteen grains of nitre every four or six hours, and live upon an antiphlogistic regimen, and if that is not sufficient, apply a few leeches in the neighbourhood of the parts.

In the hands and feet there are tendons, or as they are commonly called, leaders, by which the actions of the fingers and toes are accomplished. Those on the back of the hand and fingers, and on the top of the foot, are called extensors, and those in the palm of the hand and bottom of the foot flexors: because the one extend or straighten, and the other flex or bend the fingers and toes. If one of these tendons is divided, you must be particularly careful to place the parts in such a position that its ends may meet, and to retain them so till united, or a finger, for the toes are of less importance, may be rendered useless. Thus if one of the inner or flexor tendons of the hand be cut, the parts must be kept in a bent position in a sling; but if one of the extensor or outer tendons be divided, the hand and arm must be kept quite straight.

It is impossible to say how long a simple wound will require

to heal, in all probability five or six days will be sufficient, but if a tendon be divided, a much longer time will elapse before the ends are united.

WOUNDS ACCOMPANIED BY HÆMORRHAGE OR BLEEDING.—The circulation of the blood is carried on by two sets of vessels, called arteries and veins. The arteries carry the blood from the heart, and distribute it through the trunk and limbs, and the veins return it again to the heart. These vessels are larger as they are near to, and smaller and more numerous, as they are at a distance from the trunk. Thus in the upper arm, one trunk transmits the blood from the shoulder to the elbow, where it divides into two of smaller calibre, which in the hand again divide into branches, that supply the hand and thumb; the blood being returned by corresponding veins. A similar arrangement takes place in the thigh, leg, and foot. You must see then, that if you press with sufficient force upon the artery in the upper arm, you prevent the blood from flowing into the fore arm and hand, This arrangement must be kept in view in treating wounds accompanied by bleeding.

When a wound bleeds very fast, and perseveringly, and you cannot stop the flow by means of exposure to cool air, cold water, or pressure upon the part, you had better, if possible, obtain the assistance of a surgeon. In the mean time, however, the bleeding may be sufficient to produce disagreeable consequences, if not endanger life. Observe the colour of the blood, and the manner in which it is discharged: if it is of a florid red colour, it is arterial: does it exude from a number of small, or is it thrown out in a jet from one large vessel. If the former, you may be unable to distinguish the mouths of the vessels from which it exudes; if the latter, you will at once see whence it comes, and must proceed accordingly.

If the blood oozes from a number of small mouths, it may generally be stopped by exposure to the air for a few moments,

by bathing it with cold water, or by pressing a piece of lint firmly against the surface * of the wound. If, however, a vessel beyond a certain size is wounded, you had better apply pressure upon the trunk of the artery that supplies the limb, by which you may command the hæmorrhage till the arrival of a surgeon, or till you decide upon what further measures to pursue. The next question is, what those measures are, and can you take them *yourself*. If the artery be less than a crow-quill, it will probably retract within the muscle, and the bleeding cease; but you will scarcely be justified in doing this, unless you are prepared to tie the vessel, should its division not produce this result. If the artery be as large, or larger, than a crow-quill, the only *safe* method of proceeding is to take it up and tie it. This is a very easy thing to do, and what any person is justified in attempting in the absence of a surgeon, rather than permit the continuance of a dangerous hæmorrhage.

Suppose then, that the blood is thrown out in a jet from a small artery, that pressure has been applied on the trunk of the vessel, and, either that you cannot obtain the assistance of a surgeon, or prefer tying the vessel yourself to waiting for one—proceed in the following manner. Let the tourniquet or bandage round the arm (the application of which will be spoken of presently) be loosened a little, so that the vessel from which the blood flows may be distinctly ascertained, and draw it out by means of the tenaculum or a pair of artery forceps; tie it round with a piece of ligature thread or silk, and make a double knot; remove the instrument, and the operation is complete. If it is necessary to secure more than one vessel, you proceed in the same manner with the others, and cut off the threads to about one inch in length.

* In these cases I have known a slight pressure upon the trunk of the artery that supplies the limb, by taking off the impetus of the blood, give time for the secretion of the kind of glue by which nature stops the mouths of bleeding vessels.

Then dress the wound with strapping, as in a case of simple cut, leaving interstices between the strips of plaster for the ligature threads to come through. In three or four days these may be slightly pulled, and in six or seven will come away.

The artery that supplies the fore arm and hand, lies between the masses of muscle that form the front and back part of the upper arm, immediately over the bone. Here it may be felt to pulsate, and by applying pressure upon it, about one-third from the arm-pit, the flow of blood into the fore arm and hand will be commanded.

The artery that supplies the leg and foot may be felt to pulsate in the thigh, between the masses of muscle that form its outer and inner parts; on the inner edge of the sartorius, a muscle, the edge of which forms a ridge, extending from the outer part of the hip-bone to the inner part of the knee—you may feel it pulsate distinctly about two-sevenths from the groin, and here the tourniquet may be applied.

This instrument consists of a strong strap of webbing, made to buckle round the limb, and attached to a brass rack-work, by turning a screw of which the bandage is immediately tightened. When applied, the pad, which is made to slip along the strap, is placed immediately over the artery, and the strap is buckled so tight that one turn of the screw is sufficient to stop the circulation in the limb. This instrument costs about seven shillings, and is one no family should be without.

An extemporaneous tourniquet may be formed by making a thick pad of linen, and binding it round the limb with a handkerchief, having a slip-knot in it, by loosening or tightening which the pressure upon the artery may be increased or diminished. The circulation in the limb may also be stopped by making direct pressure upon the vessel with the bow part of a key, wrapped in some kind of linen, to prevent it from slipping.

In wounds of the head and trunk it is imposible, of course, to use the tourniquet; but in the first kind of cases, pressure may be made directly upon the trunk of the vessel by pressing it between some kind of hard pad and the bone.

LACERATED WOUNDS.—These wounds are produced by saws and machinery, &c., they frequently involve considerable loss of substance, in which case all you can do is to bring the parts as *nearly as possible* together, and apply a bread-and-water poultice, or some other simple dressing. If, however, the parts are not much comminuted, or the loss of substance be trifling, you may, by bringing them together *as nearly as you can*, and retaining them so by strapping or by a suture, save considerable deformity. They are more subject to inflammation than simple wounds, and it may, on this account, be necessary to remove all tight dressings, and heal them by suppuration; soothing them by means of poultices and the mildest dressings. Should an artery be divided, it must be tied as in wounds of a simple kind. It is important to remove every kind of extraneous matter before applying dressings of any kind.

CONTUSED WOUNDS.—These wounds partake of the nature of bruises; the injury being in most cases inflicted by means of some blunt instrument, considerable violence is incurred by the surrounding parts, and it will be necessary to soothe them by means of poultices and cooling applications. All attempts at healing them by the first intention will be useless, and the simplest applications, such as bread-and-water poultices, spermaceti ointment, &c., will be the best. If the inflammation should be violent, some leeches must be applied as near to the wound as possible, and the surrounding parts bathed, either with some cooling lotion, or warm anodyne fomentations; giving the patient a dose or two of aperient medicine.

BRUISES.—These injuries are too self-evident to require a description; if there be much inflammation it may be neces-

sary to apply leeches, and afterwards a hot emollient anodyne fomentation, or a poultice made of Goulard water and bread; in trifling cases the latter will probably be sufficient. As soon as the inflammation is gone, the parts may be rubbed with camphorated oil or opodeldoc.

VARICOSE VEINS.—The veins of the legs sometimes swell to a very large size, and become knotted and twisted. This frequently occurs to pregnant women, and with these exceptions, I believe, nine cases out of ten arise from wearing tight garters. If the veins swell beyond a certain size, inflammation sometimes takes place, and causes considerable pain and inconvenience. The only thing that can be done in these cases is, to roll a bandage round the leg from the foot upwards; you must take care, however, that it be not too tight, and that the pressure is regularly upwards. If the leg is painful, you may occasionally wet the bandage through with Goulard water, and regulate the bowels by consecutive doses of mild aperient medicine.

It sometimes happens, however, that one of these veins bursts, and a considerable quantity of blood may be lost, and the hæmorrhage be difficult to stop. I remember an accident of this kind that occurred to a lady more than seventy years old, in which many ounces of blood were lost before I arrived (though I resided only a few doors off), and in which the loss of a few ounces more would have been fatal.

Treatment.—Let some one hold a finger upon the orifice of the bleeding vessel, while you fold a piece of lint or linen into a pad about three quarters of an inch square. Apply a piece of gold-beater's-skin on the orifice, and this immediately upon it; and then bind the leg round regularly from the foot upwards with a roller, taking care that the compress does not slip. Let the leg be placed upon an inclined plane, and kept quite quiet, wetting the bandages occasionally with the Goulard lotion. Open the bowels with castor oil, and if the patient be feverish, let him take three or four drachms of acetated solution of ammonia, and two or three drops of antimonial wine in a little water, or ten or twelve grains of nitre in a little water, every four or six hours. Do not remove the bandage for some days, and then re-apply it,

or a fresh one, as the leg should at no time, after an accident of this kind, be left without support.

EPISTAXIS, OR BLEEDING OF THE NOSE,—is a means by which nature sometimes gets rid of a superabundant quantity of blood; it is only when it attacks old or debilitated people, returns very frequently, or is very profuse and persevering, that it demands any attention. Some persons are subject to a periodical discharge of this kind, which, if stopped by any cause, may produce a good deal of inconvenience, and occasionally considerable danger.

Treatment.—Remove everything tight from the throat and neck, such as a stock or neck-cloth; apply cloths wrung out of cold water to the forehead and back of the head, or if you can get it, ice. If you do not succeed by this means, dissolve ten grains of white vitriol in two ounces of water, and either inject it up the nose with a syringe, or dip a piece of lint into it and insert it up the nostril. If this fails, roll a pledget of lint into the shape of the nostril, damp it, cover it thickly with powdered charcoal, and plug it up the nose. The sudden shock produced by putting a cold key or other piece of iron down the back, will frequently stop these bleedings. Should none of these plans prove successful, and the hæmorrhage be profuse, and show no inclination to stop, you had better, if the patient is tolerably strong, take a few ounces of blood from the arm; this will frequently succeed when every other means have failed. If the body appears hot and feverish, and the bowels are costive, give four or five grains of calomel, followed by a black dose, and keep up a moderate discharge from the bowels, by giving one drachm of epsom salts in two ounces of water, every four hours. If the bowels are not costive, ten grains of nitre in a very little water, and swallowed the moment it is dissolved, may be taken every six hours.

BLEEDING FROM THE MOUTH AND GUMS,—occurs in persons of peculiar habit from the slightest causes, and sometimes is very difficult to manage. It will in general, however, yield to the application of cold water, brandy and water, or tincture of myrrh. If it does not, the sulphate of zinc or alum lotion, as recommended under the head Epistaxis, may be used.

Burns and Scalds.—A hundred different remedies are recommended as the best possible for these injuries, but none have so established a reputation as the turpentine liniment, introduced by Dr. Kentish. Unless, however, it be applied immediately after the infliction of the injury, it will be of little use, and the burn or scald will go through much the same process as a blister; but if no time be lost, and the liniment at once made and put on, much, if not all of the pain and inconvenience attendant upon these injuries will be avoided. Only three days since I was called to attend a lady, who had thrown an urn full of boiling water over her leg; one application of this liniment was in this case, as I have found it in many others, quite sufficient; there was not the slightest collection of serum, and she is now quite well.

Burns and scalds may, however, take place upon the face in situations where it is impossible to apply this remedy. In these cases I have always found cold water the best application, and have rarely seen much subsequent pain where it has been perseveringly applied.

The best way of making the turpentine liniment is, to melt some yellow Basilicon ointment, and bring it to the consistence of cream, with spirits of turpentine, stirred into it while hot. Spread this upon strips of lint or linen, and apply it to the parts affected, so that they may overlap each other; press them down closely upon the part, so as to exclude the atmospheric air as completely as possible, and bind them on. Let this dressing remain on eight or nine hours, and then, if necessary, apply a fresh one, but in doing so, have your plaster ready spread, so that the parts may not be exposed longer than necessary. This second dressing may contain a smaller proportion of turpentine, and subsequent applications still less. The object is not only to apply the stimulus of the turpentine, but to exclude the atmospheric air, so that you must be very particular that your dressings *fit* to the injured part.

When, however, from the impossibility of attending to them at the time, from neglect, or from improper treatment, an accumulation of serum has taken place, I generally find it the best plan to draw a needle full of coarse cotton through the blister, and let it remain; through this the serum filters, and the tension is taken off, without exposing the true skin to the air before it has lost some portion of its sensibility.

When burns and scalds have degenerated into open wounds, you will find it best to use the most simple dressings, such as bread and water poultices, spermaceti ointment, &c., and should proud-flesh spring up, which it is very likely to do in these cases, either sprinkle a little red precipitate over it, or apply a piece of dry lint. Should the injured surface be very extensive, and the discharge copious, it may be necessary to support the strength with bark, sulphate of quinine, and porter and wine, combined with a very nutritive diet.

Wrapping the parts up in raw cotton, or in a poultice of tallow or yellow soap, have been found efficacious, and next to the turpentine liniment are, perhaps, the best applications you can use, particularly the last. Scraped potato, linseed oil, lime-water, and cold water, have their advocates, and in the absence of other remedies may be adopted.

Piles, Hæmorrhoids.—This very troublesome and painful complaint may, in a great measure, be prevented, by keeping the bowels in a state of freedom with castor oil, or some other mild laxative; but persons subject to these attacks, should be cautious not to take aloes, colocynth, or other drastic purgatives.

Piles are of two kinds; blind (as they are vulgarly called), and bleeding; blind piles are sometimes extremely painful, they inflame, throb, and, after a time, burst; the loss of blood relieves the pain, and at different periods they go through the same process, and the periodical loss of blood in this manner becomes necessary to the health. The best method of treating piles is this:—if they are very much inflamed and pain-

ful, apply leeches, and when they come off keep up the bleeding by bathing the parts with warm water. Keep the bowels relaxed by means of castor oil, and apply an ointment composed of powdered galls, &c., described in the pharmacopœia of this work, under the name of ointment for the piles, or Ward's paste.

It may happen, however, that piles are situated so high up in the gut, as to be inaccessible to these means, in which case all you can do is, to keep the bowels free from irritation by castor oil, and occasionally throw up an emollient anodyne fomentation, or place a suppository, i. e. a large pill made of two or three grains of opium, and thirty of soap, up the rectum.

FALLING DOWN OF THE RECTUM.—Some people are subject to a protrusion of the rectum every time they have a motion, and this is generally accompanied by habitual costiveness. In these cases you must keep the bowels in a state of regularity, so that no force need be used in passing the fæces, and carefully replace the gut every time it comes down. I have seen a great deal of good accomplished in these cases by throwing up an enema of cold water every morning; but no means will be successful unless the bowels are kept in a proper state.

WARTS,—are hard excrescences too well known to require description; they generally come upon the fingers, and from interfering with their motion, are a source of considerable inconvenience. The most effectual way of removing them is with caustic; but sal ammoniac, blue vitriol, &c., will answer the purpose; proceed in the following manner:—pare off the surface of the wart with a sharp knife, and rub the surface with caustic or sal ammoniac. In a day or two again pare off the surface, which will be destroyed, and again use the caustic; proceed in this manner till the excrescence is even with the skin, and in a few days the roots will come out.

CORNS.—These painful excrescences are too well known to require description; there are comparatively few people who have not, at one time or other, suffered from them. Many suffer a daily martyrdom, and go on day after day, without taking further trouble than occasionally to pare their surfaces. Surgeons think them beneath their professional dignity, and corn doctors, I beg their pardon, chiropodists, are generally ignorant quacks, to whose tender mercies many people are not inclined to trust. The treatment of corns, however, is so simple, and their extirpation so easy, that there can be no reason why any person should not be his own chiropodist. Corn rubbers, corn plasters, corn solvents, &c., are merely quack remedies, that is to say, no remedies at all. If you rub away part of a corn, a shoe of the size usually worn will not, certainly, press so much upon it, and a kind of half cure will be produced; but the corn grows again, and with it martyrdom and torment. Talk of the tooth-ache, it is child's play to a bad corn, and, but for the inconvenience, I would as soon have a toe amputated to get rid of the one, as a tooth drawn to cure the other.

Corns are produced by pressure, and common sense teaches us to remove that pressure to cure them. There are two methods of doing this; one, by taking the corn out, and the other, inducing it to go away by removing the pressure. A corn, whether a hard or soft one, is an inverted cone, and this at once explains the whole art of removing them by excision. With a very narrow-bladed knife, or blunt lancet, separate the surrounding skin from the circle of the corn, and then gradually work the instrument downwards, keeping the point towards the centre, exactly as if you wanted to cut out what it is, an inverted cone; proceed in this manner and you will take out the corn whole. The other method of proceeding is this:—procure some adhesive plaster spread upon wash-leather, cut a strip of a sufficient size, and cut a hole in

it large enough to admit the corn, then cut another with a hole rather smaller; apply the first piece so that the corn may come into the hole, and the second in the same manner upon it. If these two do not come above its surface, put on another and another till they do; then put a strap of adhesive plaster, spread upon linen, over the whole; and if the plaster has been properly applied, you may wear a shoe or boot without making wry faces, and the corn will, in a short time, go completely away.

The best way to avoid corns is to wear easy shoes, and stockings that fit, as they are as frequently produced by the latter being too large, as the former too small; the mere pressure of the foot upon the sole of the shoe will produce them in some people, and where this is the case, a false sole of felt or thick cloth should be worn, and a hole cut in it to let the corn through.

Bunions.—A bunion is a swelling on the joint of the great toe. There is little to be done for its relief, except taking off the pressure of the shoe, by having a place made for its reception. If it inflames and grows painful, the application of two or three leeches, followed by warm fomentations, will afford relief.

Chilblains.—These troublesome swellings more frequently affect the feet, and commence in the following manner. A sensation of heat and itching is felt in the part, which inflames; the itching becomes almost unbearable, and the part very tender and painful; suppuration slowly takes place. The swelling bursts and becomes an open wound, occasionally difficult to heal.

To avoid chilblains, wear worsted stockings, and do not expose the feet to sudden changes of heat and cold.

The only time for beneficial interference in these cases is, when the itching is first felt; for suppuration, though it goes on very slowly, commences early, and once begun, nothing will stop its progress.

In the first stage of chilblains, when the itching commences, the application of some powerful stimulant will, in most cases, stop the progress of the complaint. What stimulant you use must depend upon circumstances.

Venetian turpentine spread upon fine linen and applied to the parts; or camphorated spirits of wine one ounce, tincture of cantharides two ounces, spirits of turpentine two ounces. Mix, and let the parts be well rubbed with it two or three times a day. If you cannot obtain all these things, you must use those you can.

When chilblains have proceeded beyond this stage, a different plan will be sometimes found advantageous, and the following lotion may be tried.

Sal ammoniac two drachms, vinegar two ounces, water six ounces. Bathe the parts frequently with this or the following.

Acetated solution of ammonia four ounces, camphor julep four ounces, spirits of wine or brandy, three ounces—mix.

When chilblains have broken and become open wounds, the best plan of treatment is, to poultice them till a healthy discharge of matter is established, and then dress with the following ointment.

Lard one ounce, red precipitate half a drachm—mix into an ointment.

CHAPS.—The best method of preventing chaps is, to keep the hands quite clean, and wipe them quite dry when washed. The best application is the following, well rubbed into the hands at night, and putting on leather gloves afterwards.

Mix two ounces of olive oil and two ounces of honey, and add a sufficient quantity of fine oatmeal to make a thick paste.

Washing the hands with a mixture of one-third of brandy or proof spirit, and two of water, will occasionally be useful.

THE EAR.

THE ear, like the other organs of sense, is subject to so many diseases, both of action and of structure, that any attempt to describe them would only confuse a domestic practitioner. The *sense of hearing* is impaired in apoplexy, epilepsy, inflammation of the brain, and a variety of other

diseases; and it is astonishing how slight a derangement of the digestive organs will injure the accuracy of its sensations. We shall, however, speak only of the most common local cause of deafness—an accumulation of wax in the ear. You may very easily ascertain whether this is the cause of deafness, by looking into the ear subjected to a strong light, and having found that it is, you proceed to remove it in the following manner. Mix four drachms of olive oil and half a drachm of the solution of potash (if you cannot obtain it use the oil alone), and with the feather end of a quill put a few drops into the ear, then dip some cotton or wool into oil, and stop up the external orifice; repeat this three or four times after twelve hours' intervals, and, in all probability, the wax will be so softened, that you may easily remove it by means of a bent probe, wrapped round with a piece of lint, and by syringing. In using these means, however, you must be very careful not to use the slightest violence, or you may convert a very simple annoyance into a structural disease. It is astonishing the quantity of hardened wax, mixed with pieces of hair and other extraneous substances, that are sometimes accumulated, and it is quite as much so, that they do not produce more inconvenience and pain than they appear to do. The best liquid to use for syringing is, a mixture of one part of opodeldoc with sixteen parts of water. You proceed thus.

Fill your syringe* with the liquid, and insert the end into the external ear, directing the point backwards and upwards. Close the ear upon the syringe, and throw in its contents with a continuous force, holding a napkin under the ear, to prevent the fluid that runs over from being an annoyance. Repeat this again and again, assisting the removal of the wax with a probe wrapped round with a piece of lint or linen. When you have finished, drop a little oil into the ear, and again plug it up for a day or two with cotton, when, if your first syringing has not been effectual, you may repeat it. If you do not find the hearing

* Syringes are made for this purpose, but with a little tact you may easily render a common one available.

return when you have removed the wax in this manner, you may put a little of one of the following mixtures into the ear, and repeat it every day.

Olive oil, one drachm, laudanum, thirty drops; or, olive oil, one drachm, opodeldoc, thirty drops.

EAR-ACHE.—I know of no pain more excruciating or more obstinate than what is termed the ear-ache. What I mean by the term is a rheumatic affection produced by cold. There are a host of domestic remedies for this complaint, some of which are frequently successful when more scientific means fail. They generally consist of a combination of heat and moisture, such as a roasted fig or onion applied quite hot. I have frequently seen considerable relief from putting the feet and legs into hot water. When the stomach has been out of order, by a dose or two of purgative, and dropping a little laudanum mixed with oil into the ear. The application of leeches behind the ear, followed by a blister, will, in many cases, remove the pain; but the most generally useful remedy is, steaming the ear, by placing it over a vessel (such as a mustard pot) filled with boiling water, to which a little laudanum has been added, and immediately afterwards wrapping the side of the head in flannel.

THE EAR—FOREIGN SUBSTANCES.—Children, and occasionally grown up persons, get stones, cherry-stones, peas, &c., into the ear, and their removal is a matter of no small difficulty, for which no specific directions can be given. It should, however, be attempted as soon as possible, for a foreign substance of this kind will sometimes not only cause considerable irritation, but a vegetable, such as a pea, a cherry-stone, &c., may swell, and so fill the parts, that some, and even a dangerous degree of force may be required for its removal. You may try to extract it by means of a silver probe, or a piece of wire properly curved, but if you have them, you will generally find a pair of dressing forceps the most available means on such occasions.

THE NOSE.

Children occasionally put peas, cherry-stones, &c., up the nose, and you may find some difficulty in managing even a trifling case of this kind. The common plan is to endeavour to produce their discharge by sneezing, and snuff or pepper is used for the purpose. Of all possible plans this is the worst; not one child in twenty will sneeze, but at every attempt will draw the substance higher up into the nose, while the snuff, &c., produces painful inflammation. If the substance, whatever it may be, does not produce much inconvenience, it may be left for some time to the efforts of nature, who frequently manages these matters better than the most dexterous surgeon. Much depends, however, upon the size and nature of the foreign matter. If it be a pea, you will frequently be able to hook it out with a blunt probe, or with a pair of dressing forceps.

THE EYE.

The eye is subject to numerous diseases, many of which require the nicest discrimination, and the most skilful treatment; while, from the delicacy of its structure, and the importance of its functions, it is, of all other organs, the one most obnoxious to ignorance. Of diseases of the eye, therefore, I shall say nothing further, than the treatment of the kind of inflammation which results from local injuries, and of the injuries themselves.

Gravel, lime, snuff, &c., occasionally get into the eye, and produce considerable irritation, and sometimes inflammation; the first thing in these cases is, to remove the obnoxious matter, if it is insoluble this may generally be done by means of a camel-hair pencil and ablution.

Invert the upper lid and clear away any foreign substance; then proceed in the same manner with the lower one, and afterwards wash the organ with some tepid milk-and-water. If the substance be one that possesses a chemical, as well as a mechanical action upon the eye, and is soluble in water, you had better remove as much as you can, in the manner above described, and wash away the remainder with warm water or milk and water; but if it be lime or anything escharotic, dilute it as quickly as possible. Should it have remained sufficiently long in contact with the eye to produce inflammation, which lime, mortar, or any of the acids, will do very rapidly, you had better apply a few leeches round the eye, and afterwards a poultice made of weak Goulard water; giving some opening medicine, and keeping the patient on the strictest antiphlogistic regimen.

Slight inflammations of the eyes occasionally come on from exposure to dust; in these cases washing them well out with warm milk-and-water, and afterwards two or three times a day with the eye-water, number twenty-one, will generally produce a good effect; and when from exposure to cold, steaming them well with hot water will frequently remove the inflammation in a short time. In all these cases, however, you can do no harm, and may do a great deal of good, by giving a dose or two of opening medicine.

BITES OF RABID ANIMALS.

MAD DOGS.—There are several specifics promulgated for the prevention and cure of hydrophobia, of which the Ormskirk remedy is the most celebrated, but not one of them is worthy of the slightest confidence. The only effectual prevention is excision of the wounded part, and that, to be effectual, must be immediate. Cases *are said* to have occurred, in which it has been successfully employed, some time afterwards; but

they are by no means to be depended upon, and must be considered rather as exceptions, than as safe precedents.

Of the treatment of hydrophobia we know literally nothing. The disease, when once established, is invariably fatal. Our efforts must, therefore, be to prevent, and, in the present state of surgical knowledge, cutting out the part seems to be the only means of doing so. It may happen, however, that it is impossible to perform this so quickly as necessary, in which case it will be well to prevent or delay the absorption of the poison; and the question is, how is this to be done? The application of a cupping-glass or caustic has been suggested for this purpose; but these may be as difficult to command as excision. A tape or string of some kind may generally be obtained, and you may, by binding it tightly round the limb, between the wound and the heart, in some measure prevent the poison from being carried into the circulation. The parts may also be well washed with water, or, if you can procure it, salt and water, so as to dilute the poison, and wash away as much of it as possible. This may do something towards safety till the parts can be excised, but let them be cut out the moment it is possible; and if the wound is in a muscular part, free from any important blood-vessel, any person may do this, as it can involve neither danger nor difficulty, and merely requires a little resolution. To do this, cut two wooden skewers to the size of the holes made by the teeth, for, in all human probability, the two canine teeth only will have taken effect. Insert them to the bottom of the wounds, and cut them out; by this means all that is necessary will be removed, while a large wound will be avoided. Having done this, you had better pencil the surface of the wound with caustic, or wash it with a strong solution of ammonia or of common salt. You may then dress the parts with some simple dressing, or, if it be very painful, apply a bread and water poultice.

As far as regards internal remedies, I believe them to be perfectly useless; the only good they are likely to do, is divert-

ing the attention, and amuse the patient. It is scarcely necessary to observe, that the attendance of a surgeon should, if possible, be procured in every case of this description.

SNAKES, &c.—Under this head may be included the bites of all reptiles that are more or less poisonous. In some cases, however, the poison is of so virulent a nature that no means can be used in time to be of the slightest use. The natives of most countries, in which snakes are prevalent, generally seem to possess some specific to these poisons. Thus the natives of North America are said to have a remedy for the bite of the rattlesnake; in India, where there are a great variety of these reptiles, the natives pretend not only to cure their bites, but to tame them to harmless playfellows. The latter power, however, is said to depend upon their keeping them under the influence of opium.

As before observed, the poison of these reptiles is, in some cases, carried into the system with such fearful rapidity, as to defy all attempts at prevention or cure. In others, however, the case is different, and a certain time elapses before absorption takes place. What are you to do in these?

The safest plan is to destroy, at the same time, the infected part and decompose the poison, and this is said to be effected by the application of the lunar caustic, or the strong solution of ammonia. Now nothing can be easier than for a person exposed to the chance of these accidents, to carry a stick of the one, or a small bottle of the other in his pocket, and use it the moment a necessity occurs. If, however, one of these cannot be obtained at the time, bind a ligature round the limb in the same manner as recommended under the head Mad Dogs.

In case, then, excision cannot be immediately performed, wash the parts immediately with the strong solution of ammonia, or pencil them freely with caustic, or apply a ligature round the limb, near the wound, and between it and the heart.

If, from a neglect of these precautions, the poison has been absorbed and taken into the system, the object will be to counteract its effects, and this must be attempted by means of stimulants, antispasmodics, and tonics, internally. In cases where decomposition takes place very rapidly, black and gangrenous spots breaking out on the limbs, you may try the effects of powdered charcoal or yeast, giving a tea-spoonful of the first, or a table-spoonful of the latter every hour, combined with a liberal use of brandy, port wine, camphor, opium, and ammonia, as you may be able to obtain them.

R. Strong camphor julep, six ounces; spirits of sal volatile, four drachms; or pure solution of ammonia, eighty drops; or æther, three drachms; laudanum, three drachms. Divide into four doses, and take one quarter every hour or two, according to symptoms of exhaustion and weakness, or even more frequently if the symptoms demand it; giving three grains of sulphate of quinine in two glasses of port wine every four hours. Of course this treatment must be modified according to circumstances, either increasing or diminishing the stimulants and tonic according to the urgency of the symptoms.

Stings of Bees, Wasps, Mosquitos, &c.—However trifling these injuries may appear, I have seen considerable danger arise from their taking place in peculiar situations. I remember a case to which I was called twelve years since, that nearly involved the loss of a life. The wife of a tailor near Richmond, drank some beer out of a jug, in which, from the darkness, she did not perceive there was a wasp. The insect stung her in the throat, and the swelling of the parts was so fearfully rapid and extensive, that the most active measures were required, and the effect of those was for some time doubtful. These, however, are cases of unfrequent occurrence; when they do take place, all that can be done is to treat them as cases of local inflammation, by bleeding, cupping, leeches, and purgatives, and by the use of cooling lotions, and the steam of hot water to the parts.

When a wasp or a bee alights upon any one, it would, in all probability, not attempt to sting unless irritated or fright-

ened, but the attempt to brush it off, puts it upon its self-defence, and it immediately protrudes its sting into the flesh. If the person had sufficient presence of mind to bear this patiently, it would, having done so, withdraw it and fly away; instead of this, the insect is brushed off, and the sting broken into the wound, where it forms, for some time, a source of irritation.

The first thing to be done in these cases is to remove the sting, (which you may sometimes see with a magnifying-glass, and now and then with the naked eye,) either with the point of a lancet or a needle; if, however, you cannot accomplish your purpose in this manner, put a few drops of tincture of cantharides upon the part; this will raise a small blister, and the sting will be lifted up, and may be easily removed. When the sting has not been left in the flesh, or taken out without the aid of the blistering tincture, a little spirits of wine or sal volatile is the best application to the part; but if these are not easily procured, put on a thick paste of common whiting.

Should an injury of this kind produce inflammation of the surrounding parts, which, in some situations, and acting upon particular constitutions, it will sometimes do, it may be necessary to apply leeches and cooling lotions, and give a dose or two of opening medicine.

Bugs and Fleas.—The bites of these insects, so apparently trifling in themselves, occasionally produce very serious effects, causing great constitutional irritation, and giving rise to serious nervous disorders. A person of irritable temperament goes to bed, not to rest; his sleep is broken and disturbed, and he lies in a state of nervous irritability. This occurs again and again, till the recurrence of this paltry cause brings on a nervous fever. This certainly is not a common occurrence, but that it occasionally happens, I know, having seen more cases than one. I know it is a received opinion that these insects are always the result of dirt and carelessness, but

this is not altogether the case, at least as far as regards their origin, though it certainly is, as regards their continuance. The means to get rid of the larger of these insects are very simple, and any trouble will be more than compensated by the increased comfort and quiet. The way is to destroy the insects root and branch, and this you may do in the following manner.

If they are in the walls of a room, you must have the paper stripped off and the walls washed with lime, and then have the room thoroughly fumigated with juniper berries, or with sulphur. To do this, put some live charcoal into an old iron pot (if you have not a brazier), stop up all the places that can admit air, such as the fire-place, window-sashes, &c., and then either strew juniper berries or sulphur upon the charcoal, and shut the door. The bedstead having been previously washed, &c., as described below, may be left in the room, and subjected to the same process. Still, however, you will not have done all that is necessary; the gentry frequently get into the cracks between the flooring boards, and here the fumigation will not penetrate. The best way of proceeding with these is to stop them up with putty, and have the floor painted. If you do all this you may, unless a fresh colony of the insects arrives, set them at defiance for some time at least.

The bedsteads must be taken thoroughly to pieces, and the joints, screw-holes, and every part, well washed with hot soap and water. Then, with a painting-brush, paint the joint-holes, screws, &c. with one of the following poisons:—

Spirits of turpentine, a pint; corrosive sublimate, one drachm; mercurial ointment, two ounces: mix well up into a kind of paste, or,

Mercurial ointment, four ounces; linseed oil, one pint; or,

Spirits of turpentine, one pint; corrosive sublimate, one drachm; and prussic acid, one drachm. To be used in the same manner as the others.

Sprinkling the pillows, bolsters, &c. with camphorated spirits of wine, will, in some measure, ward off the attacks of

these insects, till you can resort to more destructive measures; and the best application to their bites will be the same: though lime water, in the absence of the other, will be tolerably effectual. The same applications may be used for the bites of fleas, gnats, earwigs, and lady-birds; the bites of the latter are quite as troublesome as bugs.

Earwig.—It is thought by many people that the idea of earwigs really producing annoyance by getting into the ear, is a vulgar notion. It may be so, but it is certainly a true one. I once attended a lady, who, after suffering excruciating pain in the ear for some time, had reason to suppose that it was caused by one of these insects, and acting upon this supposition, the ear was syringed with oil, which in a short time brought away two of these insects, and the pain gradually went off.

CHAPTER VIII.

MEDICINE.

HEAD.—Apoplexy.—Epilepsy.—Inflammation of the Brain.—Brain Fever.—Delirium Tremens.

CHEST.—Inflammation of the Lungs.—Inflammation of the Pleura.—Hæmorrhage from the Lungs.

ABDOMEN.—Inflammation of the Stomach.—Inflammation of the Bowels.—Colic.—Painters' Colic.—Inflammation of the Liver, Bladder, or Kidneys.—Stone.—Spasmodic Stricture.

MEDICINE.

IT would be impossible and useless in a work of this kind to adhere to any scientific arrangement; and I think the plan I have pursued of treating firstly of diseases affecting particular organs, will be more advantageous to the reader, as they form the principal complaints in which immediate interference is essentially necessary.

Most of these diseases are of an inflammatory nature, and it must be quite clear that when inflammation attacks any organ, the functions of which are essential to life, it becomes a matter of importance that it should be checked before any change has taken place in its structure.

Fortunately, cases of this description are so strongly marked by local pain, and general heat and fever, that, with very common powers of observation, it would be almost impossible to make a mistake; and even where there is any doubt of the *precise part affected,* the presence of inflammation is so clear, and the means to combat it are so similar, that the distinction

is not, at least in the first instance, a matter of much importance. Thus it would matter very little whether you should distinguish between pleurisy and inflammation of the lungs. When cases of inflammation are likely to be confused with others requiring a different and perhaps opposite mode of treatment, the distinctions will be pointed out.

The object of the present volume is to treat of those cases of disease in which immediate relief is essential to the safety of the patient; and such others, as from their slight importance may be trusted to domestic management. It is by no means intended to supersede professional assistance where it can be obtained, but to give such directions that the patient may not be sacrificed to the delay occasionally attendant on obtaining it.

Suppose, for instance, a person residing ten miles from medical assistance, in a country not over-stocked with professional men, should be attacked by inflammation of the lungs; if every exertion be made to obtain medical assistance, at least three hours must elapse before a professional man can be upon the spot; and that, under the favourable circumstances of finding him at home, and ready to set off at a moment's notice. In that case, three, and take the average of cases, four times three hours will elapse before relief can be attempted.

If you consider what injury is going on in the chest during that time, the disease rapidly increasing, and even irritated by fear and anxiety that at the end of that time, assistance may come too late; if you consider the state of feverish anxiety and alarm the patient's family must experience, not only from the delay, but from the uncertainty of obtaining medical aid at all; and at the same time keep in mind that, did any one within a moderate distance, possess the small portion of medical knowledge and surgical tact necessary to meet such a case, all these painful feelings, and probably a life, would be spared, I think you will make up your mind to obtain such knowledge, and acquire the means of meeting such emergen-

cies not only in your own family, but for the sake of the more ignorant human beings who may be located near you. There are many diseases besides those of an inflammatory kind, in which immediate aid is quite as imperative, and some, apoplexy, wounds of arteries, and cases of poison, for instance, in which it is more so: almost all are strongly marked cases, scarcely capable of misconstruction or mistake. With regard to the unimportant cases that may be safely trusted to domestic management, there certainly is not the same urgent necessity, and instead of saving time and preventing danger, you will merely save expense and prevent inconvenience, and probably shorten the duration of pain. For instance, should one of your family or establishment have a severe burn or scald, by the time professional assistance could be procured, a blister of some magnitude might be formed, and an accident, that properly treated would have given little pain, and have scarcely taken the sufferer from his employments, may incapacitate him perhaps for weeks.

Of chronic diseases, (with one or two exceptions) I shall say nothing. In these there is plenty of time to obtain professional assistance, while in many instances their symptoms are so obscure as to baffle even that; which renders them unfit subjects for domestic treatment.

I will commence with a disease of the head—Apoplexy.

Apoplexy.—In nine cases out of ten the patient is warned of an approaching attack of Apoplexy, by certain unpleasant feelings in the head. He feels heavy and sleepy, perhaps has a singing in his ears, his vision is indistinct, moats floating before his eyes. Now if he would take this warning, and lose a little blood, by cupping or leeches, and set the digestive organs to rights, the chances are ten to one, but that the threatened attack would be avoided. Instead of this, he probably goes on eating and drinking as usual, till at length he suddenly falls down, or perhaps back in his chair, in a state of insensibility; his face is flushed, his lips blue, and the

vessels of the neck and temples, turgid with blood. He is incapable of voluntary motion, but in some cases convulsed, and the breathing is accompanied by a noise called stertor. This is apoplexy: it probably occurs after a full meal, or after some more than ordinary mental excitement; but it *may* come on at any time, and without any apparent cause. In this case there is evidently too great a determination of blood to the head, or something that prevents its return from that part, perhaps both, and unless you remedy this diseased action within a given time, a blood-vessel in the head may burst, and extravasation take place upon the brain.

Treatment.—In the first place, remove anything that presses in the slightest degree upon the throat or chest, and set the patient as nearly upright as possible; then either take away twenty-four or thirty ounces of blood from the arms, cup between the shoulders, or apply a host of leeches to the temples. Apply cold to the head, and put the feet into hot water; and as soon as the power of swallowing returns, give five or six grains of calomel and ten grains of jalap mixed in sugar or honey, and followed in one hour by a dose of the opening mixture number one, repeating it every two hours till it operates freely. Clear out the bowels by means of the purgative glyster number fourteen. If the attack occurs after a full meal, you may, *after you have taken away some blood*, give an emetic composed of twenty grains of ipecacuanha and one or two of tartar emetic, and promote vomiting by tickling the fauces (*i. e.* back of the mouth) with a feather, and giving draughts of tepid water. If, after you have relieved the blood-vessels of the head, by bleeding, from danger from the action of an emetic, and, knowing the stomach to be loaded, you cannot get one down by the mouth, dissolve twenty grains of tartar emetic in six ounces of gruel, and throw it up as a glyster; and when that has acted by vomiting, give the calomel, jalap, &c. as above.

Should the symptoms, after being relieved by the first bleeding, show a tendency to return, or should the blood-vessels appear still turgid and the breathing continue oppressed, take away more blood, though to a less extent, and put a large blister between the shoulders, and mustard poultices to the calves of the legs—keeping either a bladder filled with ice or cold water, or cloths wrung out of cold water applied to the head.

When you can get medicine down easily, endeavour to produce some action upon the skin by giving four drachms of the acetated

solution of ammonia in two ounces of water and half a drachm of sweet spirits of nitre every four hours. If sensibility returns, the breathing becoming less oppressed, and perspiration taking place upon the skin, you may hope for a favourable issue; *but* if the patient continues insensible, the breathing being stertorous and the skin dry, he will probably fall a victim to the attack.

Your patient must live for some time on the most abstemious diet: keep the bowels regularly open; have the hair cut close; avoid all mental exertion; and, above all, take regular exercise.

But what are you to do in a case of this description if you cannot bleed either by the arm, cupping, or leeches? You must remove everything tight from the neck, apply cold to the head, put the feet into hot water, give the calomel, jalap, &c. (if you mix it in honey and smear it upon the tongue, the saliva will carry it into the stomach); and if you cannot get down the black dose, repeat the jalap with two grains of calomel every hour till it acts powerfully, and keep the patient with the trunk of the body raised.

It need scarcely be observed that the patient must be kept upon the strictest antiphlogistic regimen during the attack, and very abstemiously for some time after his recovery.

EPILEPSY,—or, as it is called, the falling sickness, attacks all kinds of people, young and old, male and female, married and single. It may be produced by any kind of pressure upon the brain, by the stoppage of accustomed discharges, such as the piles, the menstrual discharge, &c., by debility produced by indulgence in sensual pleasure, and by a variety of other causes, and it is sometimes hereditary.

The person attacked, suddenly falls down, the muscles are in a state of rigidity and spasm; the jaws and hands are firmly clenched, the teeth grinding against each other, and the nails digging into the palms. The mouth foams, the eyes are generally fixed and open, and the urine is passed involuntarily; generally the limbs and head are thrown about with considerable spasmodic *violence.*

Treatment.—Remove everything tight from the throat and chest; place the patient in an upright position, and away from a wall or anything against which he might hurt himself; put a spoon covered with a cloth between the teeth, and keep the nails from digging into the hands; then hold some burnt feathers, sal-volatile, or other stimulus, to the nose. Apply cold to the head,

and hot bricks or cloths dipped in hot water to the feet and legs, and try and get down thirty or forty drops of æther or sal volatile diluted with water. In cases in which the convulsions are violent, rub the spine of the back with one table-spoonful of laudanum mixed with two of oil. Give him five grains of calomel and ten grains of jalap, followed by a dose of the mixture, number one, every two hours, till it operates freely, and clear out the bowels by means of a purgative glyster. If the blood-vessels of the head and neck are turgid with blood, you may take away some blood by cupping, or by leeches to the temples. The fit generally ends by the patient's sinking into a sound sleep, from which he awakes unconscious of all that has passed.

A variety of nostrums and domestic remedies have been employed for the cure of epilepsy ; some dictated by superstition, others the result of empiricism and quackery. Amongst the former, touching the person with the hand of a freshly hanged man, and drinking the warm blood of a toad, hold the foremost rank : both of these I have seen used. The latter are too numerous to particularise, a hundred being held in estimation by the ignorant and vulgar.

People subject to epileptic attacks should never place themselves in situations from which a fall might be injurious or dangerous, such as the bank of a river, a precipice, or the roof of a house.

Epilepsy is sometimes ushered in by a sensation of cold in one of the extremities, which runs along the limb upwards, and along the spine to the brain. Placing a tight ligature round the limb between the part where the feeling is experienced and the body, has been known to prevent an attack.

Brain Fever.—I believe that Brain Fever and inflammation of the brain are not unfrequently confused ; a little observation, however, will enable you to distinguish them. Brain fever, or delirium tremens, (though the trembling is by no means a constant symptom) generally attacks those who are worn out by drinking, or taking laudanum, or who study too hard, or who have been weakened by constant pain, such as of gravel, &c.

The patient is restless and fidgety, disliking to remain in the same posture or place for any time. There is involuntary twitching of the muscles, amounting in some cases to incessant trembling; the eyes have a peculiar expression, not exactly of wildness, but as if they wished to avoid observation,

without the peculiar drop of the upper eye-lid, observable in inflammation of the brain. The skin is frequently moist and the pulse weak, and pain in the head is not always present, and if it be so, is not increased by motion. Added to this, the patient frequently has a wish to destroy himself.

Treatment.—Clear the bowels by a mild but decided purgative, and then give a liberal dose of opium, such as sixty drops of laudanum, if the patient be unaccustomed to the use of the drug. If the patient is accustomed to the use of stimulants they must not be altogether withdrawn, but given with caution.

I have a patient subject to attacks of this disease, whose first feeling of illness commences with a lurking desire to destroy himself. I give him some opening medicine, followed by one hundred drops of laudanum, three drachms of acetated solution of ammonia, and two ounces of camphor mixture. He puts his feet into hot water, and goes to bed, where I make him stay; a perspiration breaks out, this is kept up by means of very weak hot brandy-and-water (he drinks a great quantity in general), and in forty-eight hours he is well. This routine has been gone through four times within the last twelve months.

Now, though all cases of delirium tremens must not be treated exactly in this manner, the outline of the plan is the same. To clear out the bowels, to quiet the nervous system, by means of opium; and to keep up a certain degree of stimulus according to the patient's usual habits.

Delirum tremens is a disease that has a crisis or specific termination, and generally is either removed or ends fatally within four days. The symptoms that may be considered fatal are, a low muttering delirium; picking the bed-clothes, or violent convulsions.

If low trembling delirium is present, mustard poultices may be applied to the feet or legs. If the convulsions are violent, throw up an enema made by rubbing a drachm of asafœtida with the yolk of an egg, and half a pint of water, and adding one drachm of laudanum.

You must not let a patient with an attack of this disease be long without nourishment, which must be given at regular intervals very frequently, and of a light nutritious kind, in small quantities.

INFLAMMATION OF THE BRAIN.—PHRENITIS.

Symptoms.—Pain in the head increased by motion, such as suddenly shaking it. The eyes are red and fiery, the light being very offensive to them. The skin is hot and dry, the

pulse strong and full, and the tongue white and furred, with all the symptoms of fever. The urine is high-coloured, and the bowels are costive; there is sometimes wild delirium, particularly at night, and occasionally raving.

Treatment.—Take away twenty-four or thirty ounces of blood from the arm, and repeat the bleeding. Cup on the back of the neck or temples; put the feet into hot water, and shave the head and apply cold to it, either by means of bladders filled with cold water or ice, by cloths dipped in vinegar and water, or by pouring æther upon it; give a dose of calomel—five grains—and in an hour's time a dose of the opening mixture number one, repeating it every two hours till it acts, and promoting its action by throwing up a strong purgative enema.

When the opening medicine has acted sufficiently, give ten grains of nitre and four grains of antimonial powder, or four drachms of acetated solution of ammonia, and twenty drops of antimonial wine, every four or six hours.

After freely bleeding, both generally and locally, you may put on a blister between the shoulders.

Keep the patient on the strictest antiphlogistic regimen. Keep the head cool, the feet warm, the apartment cool and well ventilated, the trunk of the body raised, and the bowels free.

If it is *possible* to obtain the assistance of a medical man, of course you will do so, and the sooner you can transfer the case to his care the better; but if the symptoms are decided, do not lose time by *waiting* for one. The disease, if neglected, increases with fearful rapidity, and a few hours lost are seldom recovered. This observation may be applied to all inflammations of the viscera: the lungs, stomach, heart, liver, &c. &c.

I will now speak of diseases affecting the upper cavity of the trunk, or chest. As I before remarked, it would be useless to include those of a chronic kind, or indeed any in which there is *time* to procure medical assistance, without endangering the life of the patient.

The chest forms the upper part of the trunk of the body, extending from the throat downwards nearly to what is called the pit of the stomach, going off in a sloping direction downwards and backwards. It is divided from the abdomen or belly by the diaphragm or midriff; the front, sides, and back-parts being inclosed by bones; the back part by the vertebræ or back-bone, and the sides by the ribs, which extend in an arch to the front

where they are joined on each side by a flat bone called the sternum. The contents of the chest are the heart, the lungs, the large blood-vessels, and the thymus gland, which is situated in a fold made by a duplicature of the pleura, a membrane that lines the chest and separates it from the substance of the lungs. The heart is separated in the same manner by a membrane called the pericardium. Inflammation may take place in the lungs, when it is called pneumonia; in the pleura, pleurisy; in the heart, cardites; and in the pericardium, pericardites. All these cases of inflammation, are, when acute, accompanied by great pain, and require bold and decisive blood-letting. I will commence with—

Inflammation of the Lungs.—A pain more or less acute, and deep seated, is felt in some part of the chest, confined to a decided limit. This pain is increased by taking a deep breath, or by coughing; it is more intense, but not so acute, as in pleurisy. The tongue is generally furred and white, the pulse full and hard, and the skin dry and hot. A cough is generally present, which seems to come from the depth of the chest, and has a hard metallic sound.

Treatment.—Take away twenty-four or thirty onces of blood from the arm, or let the blood flow till (the patient being in a *sitting position*) the pulse begins to flutter; then untie, and bind up the arm, and by the time you have done so he will in all probability have fainted, and you may lay him down on his back. Remember to take away blood, either till the *pain is removed*, till the pulse flutters, or till, having abstracted a considerable quantity, and the pain being *mitigated*, you prefer waiting to see the effect of this to urging the bleeding to a greater extent.

You had better give immediately some opening medicine; this may consist of five or six grains of calomel, followed in an hour by a dose of the opening mixture number one, which must be repeated every two hours till it operates freely, promoting its effect by throwing up a purgative glyster, number fourteen. Examine the blood, and if you find it coagulated into the form of a cup, sinking in the middle, and covered with a thick coat of lymph,* there is inflammation present, in proportion as these appearances are strongly marked.

* Technically speaking, cupped and buffed.

If the pain should not be quite gone, or should return, you must repeat the bleeding, and this even a second or third time.

If the skin is very hot and dry, and the pulse strong and full, give ten or twelve grains of nitre, and four of antimonial powder every six hours; or four drachms of the acetated solution of ammonia, twenty drops of antimonial wine, and half a drachm of sweet spirit of nitre, at the same periods. After you have reduced the pulse and fever by bleeding and medicine, you had better, if the pain continues, apply a blister over the part affected, and endeavour to produce a discharge from the lungs by expectoration. The simplest means of doing this is to direct the patient to inhale the steam of hot water, and give him a grain and a half of powdered ipecacuanha in addition to each dose of saline medicine.

If you have subdued the pain—if a perspiration breaks out upon the skin, the cough becomes easier, and accompanied by a free expectoration, you may hope for a favourable termination; *but*, if the pain remains unmitigated, the skin hot and dry, the cough hard and metallic, accompanied by increased oppression at the chest, you will probably have a fatal one. I have purposely omitted such minute symptoms as would only confuse the domestic practitioner. Keep the following leading symptoms in mind: pain in the chest, more or less acute, and more circumscribed and deep-seated than in pleurisy—increased by taking a deep respiration, and by coughing; a dry metallic and hard cough, a hot and dry skin, a white tongue, and a strong and rapid pulse. The means to combat these symptoms: to decrease both the impetus and quantity of blood by abstracting blood by means of a large orifice; to reduce the heat and fever, and promote the action of the skin by saline medicines: to remove irritation of the bowels by purgatives; and to produce a healthy action on the surface of the lungs by expectorants and by inhaling steam: to cause counter irritation by the application of blisters. If you keep these features in mind you cannot do wrong.

The patient must be kept upon the *strictest* antiphlogistic regimen; every source of bodily or mental irritation must be avoided. The room must be kept of an even temperature and well ventilated. *He* must not be oppressed by visitors or condolers, or allowed to exert himself by talking; in short, your patient should lie perfectly quiet, seeing as few people, talking as little, and even thinking as little as possible.

PLEURISY—INFLAMMATION OF THE PLEURA, OR MEMBRANE THAT SEPARATES THE LUNGS FROM THE CHEST.—It generally commences with an acute pain, more frequently of the left side, more superficial and diffused than in inflam-

mation of the lungs; increased by drawing a deep breath, by coughing and by bending suddenly, and in some cases, by lying on the opposite side. The tongue is white and furred, the skin hot and dry, the pulse full and quick, but not so *strong* as in inflammation of the lungs, and there is a short dry cough.

Treatment.—You need make little difference in the treatment between this disease and the last, except that after having taken away a liberal quantity of blood from the arm, local bleeding by cupping or leeches, will be likely to remove any remains of pain, particularly if followed by efficient blistering; but in this, as in the last disease mentioned, you must be guided by the appearance of the blood; so long as that is cupped and buffed, bleeding from the arm is imperative. If the pain remains after these appearances have ceased, local bleeding and blistering may be substituted.

The treatment then consists of general and local bleeding, keeping the bowels open by means of laxatives, and the skin free with saline febrifuge medicines, and in producing counter irritation by the application of blisters; inhaling the steam of warm water, and putting the feet into hot water, will be valuable adjuncts.

If you find the pulse not sufficiently reduced by the bleeding and saline medicines, you may give (if it is among the contents of your medicine chest) twenty drops of the tincture of fox-glove, in addition to each dose, gradually increasing the quantity two drops at a time, till it either reduces the action of the heart, or till its effects upon the head (giddiness, confusion, and a sense of faintness) oblige you to leave off. Do not, however, give the degitalis till you have determined not to repeat the bleeding, nor continue its use beyond three days without an intermission. Combat its effects upon the head, &c. by putting the feet into warm water.

HÆMORRHAGE, OR BLEEDING FROM THE LUNGS.—The rupture of a blood-vessel in the lungs, is at all times a fearful, and, in many cases, a dangerous accident; not only from its present effect, but as showing a diathesis somewhat inimical to life, and incompatible with exertion. Bleeding from the lungs may be produced by ulceration, in which case it is generally irremediable; by weakness in the coats of the vessels, and by increased action of the arteries of the part, either from over exertion, or other causes. In the first of these

cases the hæmorrhage may be only a fatal symptom of prior disease. In the two latter, though proceeding from different causes, the treatment must be upon the same principle, that of reducing the flow of blood through the part, and this can only be accomplished in time to be available by bleeding.

After feeling a sort of uncomfortable heat in the chest, and frequently without even that pre-admonition, a person suddenly finds his mouth full of blood; he is naturally alarmed, and fancies himself at least an invalid for life, if not a doomed man; a table-spoonful is magnified into a pint, and he breathes in the constant dread that every expiration will produce a fresh discharge; and this, by interfering with the action of the lungs, increases the probability of it. But how are you to know that the blood does come from the lungs? If it is of a florid red colour, frothy, as if mixed with air, it does so; but the latter appearance is more perceptible when the blood is spit up in small quantities, than when a larger vessel is ruptured. There is perhaps a feeling of weight in the chest, and if it is caused by increased action, unless a great quantity of blood has been lost, the pulse is strong and full.

Treatment.—The old practice was to give small doses of elixir of vitriol or some other acid,—with what intention heaven only knows; certainly if the acid went directly to the parts it might act as a styptic, but as its application in *this* manner might be attended with some risk of suffocation, I cannot imagine the principle upon which it was intended to act. Common sense teaches that whether it proceeds from weakness of the vessels, or from their increased action, hæmorrhage from the lungs can only be successfully combated by diminishing the flow of blood through them; and this can only be effected *immediately* by bleeding.

Take blood from the arm in proportion to the age and strength of the patient; enjoin perfect rest and quiet: give, if the skin be hot and the pulse hard and full, twelve grains of nitre in a little water; let it be swallowed the moment or almost before it is dissolved, and repeat it every four or six hours. If the discharge continues, apply cloths dipped in cold water, or ice, to the chest, as recommended by Dr. Elliotson; but above all things enjoin perfect quiet of mind and body. If the circulation is still carried on too rapidly, add twenty drops of tincture of digitalis to each

dose, as recommended under the head Pleurisy, and keep the bowels relaxed,—not with castor oil, for that might cause vomiting,—but by giving small doses of Epsom salts, one and a half drachm or two drachms every two hours, so that they may act as a laxative and a febrifuge. Let the diet be of the mildest and least stimulating kind, and the apartment cool and well ventilated.

When the bleeding has ceased for some time, you may do good by applying a blister to the chest; but till then the constitutional irritation produced by a blister will more than counterbalance its beneficial effects as a counter irritant. The patient should lead a very quiet life, use little or no exertion, live very abstemiously, and keep the bowels very regular for some time after recovery from the attack. If he is in a weak state of health, he may take twenty drops of diluted sulphuric acid in one ounce of infusion of gentian, three times a day.

DISEASES OF THE ABDOMEN.

THE abdomen or belly, forms the lower part of the trunk of the body; it is divided from the chest by the diaphragm. The contents of the abdomen are the stomach and intestines, the liver and gall bladder, the pancreas, spleen, kidneys, and bladder. These different viscera are subject to attacks of inflammation, and other kinds of disease. Of such of these as require immediate aid, I am about to speak. I will commence with *Inflammation of the Stomach.*

The stomach is situated in the upper part of the abdomen, rather inclining to the left side.

Symptoms.—Acute pain in the region of the stomach increased by pressure, sometimes even of the bed-clothes; great tension and swelling, and tenderness, nausea and vomiting, either liquid or solid food increasing the pain, and being almost immediately rejected. The skin generally dry, the tongue furred.

Treatment.—The only means to be depended upon in this very dangerous disease, is the early and free use of the lancet. Till the inflammatory action has been reduced by bleeding, medicine

will be immediately rejected. Make a large orifice in the arm, and take blood away, either till the pulse flutters and the patient is on the eve of fainting, or till the pain is removed. Apply warm fomentations over the parts ; and, as soon as it will keep down, give five or six grains of calomel, and in two hours afterwards a dose of aperient medicine. The best for the purpose is castor oil ; but as in all probability it would be rejected if taken in its natural state, you had better give it mixed with egg, according to prescription number three.

If the pain is not entirely removed by the first bleeding, or if, having been removed, it should return, you must repeat the bleeding, continue the use of the warm fomentations, throw up an emollient enema, and if possible put your patient into the warm bath.

Should there still be any remains of the pain, though not so violent as before, you had better, after waiting four hours, (unless the symptoms are too violent to allow you to do so) either take away twelve or fourteen ounces of blood, by cupping, or apply twenty or twenty-four leeches over the region of the stomach. Apply a bag filled with bran and dipped in hot water to the parts, and immediately the bleeding has ceased put on a large blister.

How long are you to wait before you bleed a second time ? This will depend upon circumstances. If the first blood is very much cupped and buffed, if the bleeding has been stopped before the pain was removed, and if it seems disposed rather to increase than to go away,—two hours, or even less, will be sufficient to wait ; but if the circumstances are the reverse of this,—the pain being considerably relieved, and the sickness, tenderness, and distention diminished, you may wait double that time.

What medicines are you to give ? The only ones from which you will derive the slightest benefit are saline draughts taken in a state of effervescence. Add a table-spoonful of lemon juice to 25 grains of salt of tartar, dissolved in two table-spoonsful of water, and if the sickness and irritability of stomach remain after the pain and inflammation have subsided, you may add one grain or one and a half of the watery extract of opium, or twenty-five drops of laudanum to each dose, or throw up an enema made of three ounces of water and a drachm of laudanum.

The patient must live on the most strictly antiphlogistic regimen ; barley-water, toast-and-water, &c., forming his whole diet.

If the pain *gradually* goes off, the sickness and vomiting diminish, the tension becoming less ; if the skin breaks out into a healthy perspiration, or even becomes moist, if a free action of the bowels is produced, you may build upon your patient's recovery ; *but if* the pain continues violent, the sickness and vomiting obstinate, and the distention increases, the region of the stomach and belly sounding like a drum ; if the skin continues dry, if the breathing becomes oppressed and difficult, the patient

anxious and watching, picking the bed-clothes, and moving the fingers about as if playing with something; if these symptoms are accompanied by a low murmuring delirium, medicine will in all probability be useless.

Sometimes the pain suddenly vanishes, and an inexperienced attendant might fancy that all danger was over; but the patient sinks rapidly and dies from the effects of mortification.

Recapitulation.—Bleeding, warm fomentations, local bleeding by means of cupping or leeches, opening medicines, salines, opium, counter irritation by blisters, the warm bath, and anodyne and purgative enemas; a strictly antiphlogistic regimen, and perfect quiet.

The symptoms that mark active inflammation of the stomach are: the pain being very acute, and increased by pressure; great tenderness over the region of the stomach and vomiting, food and liquid increasing the pain and being immediately rejected.

CHOLIC.

Symptoms—Very similar to those of inflammation, are sometimes occasioned by wind and spasm; but in these cases the pain is not regular, but comes on by paroxysms, and resembles cramp. It is also relieved rather than increased by pressure. There is not necessarily either heat or fever, till it is produced by the excitement of the pain; and the tenderness, which, in violent cases of inflammation of the stomach, is increased by the slightest touch, is not present.

Treatment.—Unless under certain circumstances, bleeding is not necessary in these cases. The best practice is to give a strong dose of calomel, followed immediately by a dose of carminative opening medicine*, applying the anodyne fomentation as hot as it can be borne to the parts. The action of the medicine may be promoted by throwing up the purgative glyster, number fifteen. If the opening medicine does not act in one hour, an efficient dose of castor oil should be given, and repeated if necessary.

* The following draught, or a similar one, will be applicable:—Rhubarb twenty grains, magnesia ten grains, carbonate of soda ten grains, tincture of rhubarb four ounces, and dill, aniseed, caraway or peppermint water, one ounce and a half.

INFLAMMATION OF THE BOWELS.

Severe and excruciating pain, accompanied by sickness and vomiting, and increased by the slightest pressure. Tension, and swelling of the belly; after a time the bowels becoming knotted and lumpy, at least feeling so. The skin is dry and hot, the pulse, generally, weak and low, and the bowels obstinately costive.

Treatment.—In these cases, like the last, immediate and ample bleeding is the only thing that can be depended upon, and should be at once employed. Examine the blood as soon as it has coagulated, and if you find it much cupped and buffed, and the pain continues, at once repeat the bleeding. Throw up a large emollient purgative glyster, and foment the bowels with the anodyne fomentation as hot as it can be borne. Give a dose of calomel five or six grains, and in half an hour afterwards a dose of the castor oil mixture number three; repeat it every two hours till it operates freely. In all probability the pulse, from being weak and oppressed, will become full and regular after the first bleeding. If the pain is mitigated but not removed by the second bleeding, either cup upon the part, or apply twenty or twenty-four leeches, and then foment the parts with the anodyne fomentation, or apply a bran bag dipped in hot water, till the bleeding has ceased; and when it has stopped put on a large blister. Throw up every now and then an emollient glyster.

You will find medicine of comparatively little use; in this disease your principal dependence must be upon bleeding, cupping, and counter irritation. If these means are promptly employed, the bowels will gradually return to their natural state, and, if not irritated by too much or improper food, will in a short time be fit to resume their duties. If, after the pain and inflammation are gone, a degree of irritability of the stomach or bowels should remain, the first marked by nausea and rejection of food, and the other by purging or passing it too quickly or unchanged; in the first case give one grain or a grain and a half of the watery extract of opium in a saline draught every six or eight hours, and in the last throw up an enema composed of sixty drops of laudanum and three ounces of thin starch every eight hours.

A person, after an attack of this kind, should live for some time on the most simple and unirritating food, pay particular attention to the digestive organs, and keep the bowels in a regular state by occasional doses of castor oil, or some other mild purgative.

CHOLIC.—Violent pain and cramps in the bowels, rather relieved than increased by pressure; a painful sensation, as if the bowels were being twisted, inducing the patient to draw his legs up to his body; the bowels feeling knotted, as in protracted cases of inflammation of the parts. The pain is not constant, but comes on in paroxysms, the patient being comparatively easy for short periods. The pulse is not much affected at first, but becomes excited and quickened by the pain.

Treatment.—Give immediately five grains of calomel in a pill, and the same draught recommended for a similar affection of the stomach; foment the parts with the anodyne fomentation, applied as hot as possible; rub the belly well with the hand or flannel; throw up a warm purgative emollient enema; if the costiveness is very obstinate, rub the belly with one ounce of olive, mixed with ten or fifteen drops of croton oil, and give a dose of the castor oil mixture number three, and essence of peppermint five drops every two hours till you produce a free evacuation of the bowels. If possible put the patient into the warm bath.

PAINTERS' CHOLIC.—Though this complaint is more generally confined to painters, other people are by no means exempt from it, particularly if, from any circumstance, they are exposed to the influence of lead. I have known an attack of this complaint produced by merely painting for a few hours; and though this is by no means a common, it is not a very unlikely thing to occur to persons of peculiar constitutions. Painters' cholic is a very painful though not a particularly dangerous disease.

Symptoms.—Violent pain in the bowels, accompanied by griping and twisting, the bowels being knotted and obstinately costive; nausea and vomiting; the pulse weak and slow; generally considerable pain in the head.

Treatment.—Give immediately a strong dose of calomel and jalap, six grains of the former and ten of the latter. In one hour give a dose of castor oil, and throw up from time to time a strong purgative glyster. Apply hot anodyne fomentations to the bowels. If they are obstinately costive, and the castor oil, after being

repeated every hour for two or three times, does not operate, give two drops of croton oil made into pills with crumbs of bread. If the castor oil will not keep down, you must substitute strong doses of the opening mixture number one. You may, perhaps, promote the action of the bowels if you rub them with croton and olive oil, as recommended under the head Cholic.

If, however, the pain is very violent, and the stomach so irritable that medicine will not keep down, you must take blood from the arm, and that from a sufficiently large orifice and in a sufficient quantity to produce a decided effect upon the disease at once. I should have mentioned this first, but that domestic practitioners are always glad to avoid bleeding if possible; and in this complaint, unless there be violent sickness and great irritability, it *may* be unnecessary. Perhaps of all means you will find the warm bath, next to bleeding, the most useful in allaying the irritability of stomach.

Your objects in the treatment of this complaint, are to relieve the pain and to procure a full and free evacuation of the bowels; and to effect these, bleeding, purgatives, and purgative glysters, hot anodyne fomentations, purgative embrocations, and the warm bath, must be used; and when a free evacuation of the bowels has been effected, a full dose of opium, from sixty to eighty drops of laudanum.

Obstinate Costiveness.—Cases of obstinate costiveness sometimes occur, in which there is scarcely any pain, and no inflammatory symptoms, and yet which, if neglected, might give rise to dangerous consequences.

Treatment.—In these cases you had better get an efficient relief as quickly as possible, by giving five or six grains of calomel, and in two hours afterwards a dose of the opening mixture number one, or the castor oil emulsion number three, assisting its action by throwing up a purgative enema, and repeating the mixture and the glyster every three hours till the bowels are freely evacuated. If these means are ineffectual, give one and a half drops or two drops of croton oil in a pill, and repeat it if it does not act in three or four hours. You will find great use in throwing up very large emollient purgative glysters.

The Liver.—The liver is situated in the upper and back part of the belly, its superior or convex part fitting into the concavity of the diaphragm, and its sides going off somewhat in the direction of the ribs, sloping off downwards and backwards on each side of the stomach, and forming a kind of

basin. The right lobe is the largest, and most frequently attacked by inflammation. The office performed by the liver is to secrete the bile, a liquor important to digestion; and if its functions are interfered with by inflammation, considerable constitutional derangement is the result. The bile secreted by the liver is carried by a pipe or duct into the gall bladder, where it remains till required in the process of digestion, when it is carried by another duct into the duodenum or upper portion of the intestinal canal.

INFLAMMATION OF THE LIVER.—Pain in the (generally) right side, under what is called the false ribs, or occasionally a little below them. This pain is more or less acute, is increased by breathing hard, by coughing, by bending the body, and by pressure, and strikes upwards and backwards under the shoulder-blade. The pulse is full and strong, the skin hot and dry, and the tongue furred and white. The white of the eye is generally tinged with yellow; the urine of a very deep yellow colour. Vomiting sometimes, but not invariably, accompanies these symptoms.

Treatment.—The liver is one of the most important of the viscera, and very liable to structural disease. In a case of this kind, therefore, not a moment should be lost, but active measures taken to prevent it. The first thing to be done is to take away blood by means of a large orifice from the arm. Let the blood flow either till the patient (in a sitting posture) is on the eve of fainting, or till the pain is *mitigated;* for I have scarcely ever seen it removed in a case of this kind by the first bleeding. If the blood is very much cupped and buffed, and the pain continues severe, repeat the bleeding after a lapse of three hours. In the meantime give a strong dose, eight or ten grains of calomel, and in two hours a full quantity of the opening mixture number one, repeating it every two hours till it acts very freely upon the bowels, and throw up a purgative glyster to promote its action. If the pain is mitigated by these means, but still remains as it were stationary at the point at which the bleeding left it, take away sixteen ounces of blood from the side by cupping or leeches, and apply a large blister. Having opened the bowels, you had better endeavour to produce some action upon the skin, and at the same time put the patient under the influence of mercury. If you give five grains of blue pill every six hours, and

between the doses four drachms of acetated solution of ammonia, and thirty drops of antimonial wine, you will in all probability accomplish this purpose. Proceed in this manner, keeping your patient on a bread and water diet till every vestige of pain is removed, or till the gums begin to be tender: take care that he does not expose himself to any check of perspiration.

If these means are taken actively and with promptitude, in all probability the inflammatory action, the pain, and other symptoms consequent upon it, will gradually decline; but you must be cautious to leave nothing on which a chronic inflammation of the organ may be founded.

INFLAMMATION OF THE BLADDER—CYSTITES.—The bladder, or vessel for the reception of urine, is a membraneous bag, at the lower and front part of the abdomen, and, when full, may be felt just above the bone at the lowest part of the belly. There are two kinds of inflammation of the bladder, one affecting the outer, peritoneal, or membranous coat, the other the inner or mucous. The fever and inflammatory symptoms are generally more severe when the outer coat is affected.

Symptoms.—Pain in the region of the bladder, increased by pressure and any sudden movement, especially forwards, and by coughing. The urine dribbles away in small quantities, or its flow is entirely stopped. When the outer coat is affected, the pain is more increased by pressure, &c., and the symptoms of fever are more decided, the tongue being dry, white, and furred, the skin hot and dry, and the pulse full and rapid. These symptoms, though present, are not so strongly marked when the inner coat is the seat of the inflammation, but, in this case, urine is generally mixed with mucus, and sometimes with blood. Vomiting, a frequent symptom in the former, seldom occurs in the latter case.

Treatment.—Bleed from the arm either till the pain is removed or the pulse flutters, and indicates the appearance of fainting. Give five grains of calomel, and in an hour or half an hour an efficient dose of castor oil; and as soon as the opening medicine has acted, sixty drops of laudanum in a saline draught, number 10. If the pain is not removed by these means (for we may take the pain as a meter of the other symptoms), shave the parts,

and apply twelve or fourteen leeches; and when they come off, put on a flannel bag filled with bran and dipped into hot water. Occasionally throw up emollient glysters.

With regard to medicine: if the bowels are inclined to be costive, give a drachm of tartrate of potash, or soda, in a saline draught number ten, every three or four hours: if the bowels are free the tartrate may be omitted. If, however, the affection be of the *outer* coat, instead of the saline draught alone, give between the doses two grains of calomel and a grain of opium, leaving it off directly the mouth begins to be affected. If the pain is very severe throw up a glyster composed of three ounces of water and sixty drops of laudanum, repeating it according to circumstances, or place a suppository or bolus made of opium in the rectum. Three grains of crude opium made into a bolus with soap will be sufficient.

If it be possible to use it, you will find the warm bath a most valuable adjunct to the other means: if that be impracticable, let the patient sit over water as nearly boiling as he can bear it.

STONE IN THE BLADDER.—Patients suffering from stone in the bladder are liable to violent paroxysms after taking more than common exercise, and it is a desirable object to mitigate the pain if possible. The only means of doing this, that I am acquainted with, are perfect rest, loosening the bowels with castor oil, and by means of opium, though in some cases it may be necessary to bleed. The best way of using opium for this purpose is as a clyster or suppository. Give an efficient dose of castor oil, and, when that has acted, mix sixty or ninety drops of laudanum with three ounces of water, and throw it up the rectum by means of a syringe; or mix two or three grains of crude opium with twelve of soap, and place it in the rectum as a suppository.

STRICTURE.—There are two kinds of stricture, structural and spasmodic. Of the former I shall say nothing. The latter is sometimes occasioned by violent horse exercise, by retaining the urine too long, and by some other causes. A person has an inclination to make water, but cannot do so, or it passes only in drops. The bladder may be felt distended, just above the bone at the lowest part of the abdomen. Now if these symptoms occur soon after taking violent exercise, or

after having retained the urine beyond a certain time, they may be fairly attributed to spasmodic stricture, for if they proceeded from the bladder's having, from over-distention, lost its power to expel the urine, there would not be the constant attempts to make water. In this case, if you gave diuretics, they would certainly increase the complaint. Firstly, give a five-grain dose of calomel, and in half an hour an ounce of castor-oil. Then throw up an emollient purgative glyster, and, if these means do not succeed, you must try opium. I have seen a powerful effect produced by giving ten drops of muriated tincture of iron and seven or eight drops of laudanum every hour till they acted. I do not know how this acts, but I know that in nine cases out of ten it will succeed. I have also *experienced* benefit from sitting over hot water, and from the somewhat reverse proceeding of dashing cold water over the thighs: but of all remedies I believe the warm bath to be the most effectual. When all these means have failed, I have seen the desired effect produced by taking blood from the arm till the patient was on the eve of fainting.

THE KIDNEYS.

THE kidneys are situated at the back part of the belly, a little above the spine of the hip, and one on each side the back-bone. Their use is to separate the urine, which is conveyed into the bladder by two tubes, called ureters, that descend downwards and forwards in the direction of that viscus.

INFLAMMATION OF THE KIDNEYS—NEPHRITIS.—Pain in the region of the kidneys, extending downwards and forwards along the ureters. The pain increased by coughing, pressure, moving, and, in some cases, by taking a deep breath. There is frequent desire to make water, which is very high coloured,

and discharged in small quantities. The upper part of the thigh, on the side affected, is benumbed, and the testicle (if a male) retracted. The skin is hot and dry, the tongue furred, and occasionally there is vomiting.

Treatment.—Place the patient in a sitting posture, and take away blood from a large orifice in the arm either till the pain is removed or the pulse begins to flutter and indicate approaching syncope. Give 5 or 6 grains of calomel, followed by a dose of castor oil, and promote their action by throwing up an emollient purgative enema. When the pulse has been reduced by bleeding and the bowels evacuated, give sixty drops of laudanum in a saline draught, repeating the latter every four hours, and the opium as often as may be necessary; and you may keep up the action of the purgative by adding a drachm of tartrate of potass or soda to the saline. If, after a lapse of four hours, the pain still remains, take some blood from the part by cupping or leeches, and apply a blister on the part, interposing a piece of tissue paper or thin muslin between the plaster and the skin, which will prevent the absorption of the cantharides and consequent stranguary. Keep the patient in a state of quiet both of mind and body, and on the strictest antiphlogistic regimen. If the pain is severe you will find good effect from throwing up an enema containing sixty drops of laudanum and three or four ounces of water: warm anodyne fomentations will also be found useful, and the warm bath doubly so. After an attack of inflammation of the kidneys, great care should be taken to keep up a certain degree of warmth in the parts; and the patient should wear one or two folds of flannel over the loins.

CHAPTER IX.

Hysterics.—Ague.—Rheumatism.—Itch.

HYSTERICS—Are confined exclusively to the female sex; though somewhat similar symptoms occasionally affect males of a weak and nervous temperament; they are generally caused by some peculiar state of the sexual health. They seldom appear before the age of puberty; but single women are said to be more subject to its attacks than married ones.

An hysteric fit generally commences with an uncontrollable fit of laughing or crying, perhaps followed immediately by the reverse; and this without any or very slight cause for either. A sense of distention is felt in the left side; this passes onwards to the stomach and thence to the throat, causing a feeling of a ball, called the globus hystericus, and a sense of suffocation. Alternate fits of laughing and crying accompanied by hiccup take place. The most extraordinary expressions are (sometimes) used, or rather screamed out, till, worn out with fatigue and the sense of suffocation, which gradually reaches higher and higher, the woman feels faint; this relaxes the spasm, a quantity of wind is thrown off by the mouth; and the fit ends in an uncontrollable fit of crying, from which, if left to herself, she gradually recovers; occasionally, however, there are violent convulsions; considerable determination to the head, and in some cases the palpitation of the heart, which is generally present more or less, is very violent and distressing, and accompanied by great difficulty of breathing.

Treatment.—These cases do not in general require any medi-

cal treatment further than a dose of stimulus, such as half a drachm of sal volatile or æther in water. In cases accompanied by convulsions, they may be relieved by rubbing the whole spine with an embrocation of one table-spoonful of laudanum and two of olive oil, and by giving the following enema, which must be thrown up very gradually: rub three drachms of asafœtida with the yolk of an egg, and add very gradually half a pint of tepid soft water and a drachm of laudanum. Putting the feet and legs into hot water and rubbing them with mustard will, in some cases, afford relief.

The old-school medical men used to treat their hysterical patients like naughty children, and scold them into being well. But the fact is, that unless convulsions are present, they may be safely trusted to nature.

SYNCOPE, OR FAINTING, may be produced by any cause sufficiently powerful to stop the action of the heart; and is dangerous in proportion rather to the time it continues, than the violence of the cause. It may be caused by loss of blood; heat, fear, cold, pain, disagreeable or horrible sights, or even perfumes; by some medicines, such as digitalis, and by weakness, &c.

Symptoms.—The action of the heart is suspended, the face is pale, and the extremities cold, and the patient is unconscious and insensible. This is what is called a fainting fit, and if it is protracted beyond a certain time, may end in death.

Treatment.—Lay the person flat down; apply stimulus to the nose, and heat to the feet; put the hands into warm water; rub the chest and region of the heart with the hand or flannel. As soon as the power of swallowing returns, give thirty or forty drops of æther or sal volatile in a glass of water, or a little brandy and water, or other stimulant. If obstinate, rub the body all over, and endeavour to increase the action of the lungs by blowing into the nostrils, as recommended under the head Drowning. In short, endeavour to produce animation by every means in your power.

INTERMITTENT FEVER—AGUE.

INTERMITTENT fever or ague attacks people who live in low marshy situations exposed to damp, and marsh miasmata, or foul air; it consists in a fit of shaking, that is occasionally

so violent as to make the sufferer feel as if his bones were dislocated; this is followed by a state of heat, fever, and anxiety, which lasts a longer or shorter time, till at last a sweat breaks out, and the fit is over; now this may recur every twenty-four or forty-eight hours, or at intervals of three or four days; but this is a matter of comparatively trifling importance, the methods of cure being the same in all cases.

The first time a person is attacked by ague, the fit will have its course; for it is scarcely likely, till the conviction is forced upon him by two or three fits, that he can make up his mind to the nature of the attack. As soon however as you have done so, proceed in the following manner: mark the period at which the fits recur, and just before one is expected, and you may always (almost) tell by a premonitory shudder, give forty or fifty drops of laudanum; and proceed in the same manner, the next time the attack is expected, giving in the intervals three grains of sulphate of quinine every six hours. I have never yet seen an attack of intermittent fever that did not yield to this plan in a few days. You should however continue to give the quinine in rather smaller doses, for at least ten days after the disease is apparently conquered.

RHEUMATISM.

Colonists and emigrants are likely to be exposed to attacks of this complaint, from their exposure to all kinds and sudden changes of weather and temperature.

Symptoms.—Acute pains in some one or more of the larger joints of the body, accompanied by considerable swelling and inflammation.

Treatment.—Clear the bowels well out by giving five or six grains of calomel, followed by the opening mixture number two every two hours, till it operates fully. Then give the following powder every eight hours:

Calomel one grain, antimonial powder four grains; make into a powder.

And between the doses the following saline draught:

R. Solution of acetated ammonia six drachms, camphor julep one ounce; make into a draught.

If the tongue is not white and dry, nor the skin very dry, you may substitute the following for the first mentioned powder:

Calomel one grain, Dover's powder ten grains; make into a powder.

You must of course watch that the mercury does not affect the mouth.

Foment the parts with hot water, to every pint of which one fourth of an ounce of laudanum may be added, and wrap them well in flannel.

If by these means you get your patient into a perspiration, keep it up by giving one third of a grain of tartar emetic in water every six or eight hours.

In all severe attacks of rheumatism obtain medical assistance, if possible, as it will sometimes change its attacks from a limb to one of the viscera, and require, not only decisive, but very judicious treatment. Should it do so, it will be necessary to bleed from the arm, till the pain is removed, or till you have made a decided impression upon the constitution.

Of all remedies, none however is more effectual than a hot bath.

SCABIES—ITCH.

Of all the different classes of diseases, cutaneous are, perhaps, the most difficult to understand from description. I shall only introduce one, the itch, and that because it is at the same time so common, so troublesome, and yet so easy of cure, that if you live at a distance from medical advice, and should unfortunately catch it, it would be scarcely worth your while to go to the expense of medical attendance for its cure.

This disease is considered so discreditable, that people affected with it generally allow it to get into a bad state before they make up their minds to consult a medical man on the subject.

There are four kinds of itch, the common, the lymphatic or watery, the pocky, and the cachectic.

The first of these consists of an eruption of very small vesicles slightly pointed at the top, and more or less inflamed. They come out first between the fingers, at the joints of the wrists, and about the pit of the stomach; and, as the disease increases, they become very numerous about the joints of both the legs and arms. The appearance of the complaint is, however, soon altered by the effects of constant scratching, and red wales mixed with black scabs soon become mixed with the eruption.

In the second kind, the watery itch, the vesicles are much larger, are translucent, and have no inflammation; they are generally confined to the wrists, toes, fingers, and larger joints; some of the vesicles soon break, and healing, form a scab, while others discharge a yellow matter, join, and form considerable blotches.

The pocky itch comes out in pimples, something like the small-pox, from its resemblance to which it takes its name. They occur first on the fingers, and gradually extend to the large joints, after a time suppurate, and running into each other, form large ulcerating blotches occasionally of considerable depth. These at last scab over, and fresh ones break out, going through the same course.

The last kind, the *cachectic*, has the peculiarity of originating without exposure to contagion, and of returning at stated periods. It generally attacks children and persons who have been weakened by other diseases; and sometimes extends to the face.

Besides these there is a complaint *resembling* itch, produced by contact with mangy animals; it extends over the whole person, making the skin very rough, and of a disagreeable brown colour, which, added to the inflammation and eruption, has a singularly disgusting appearance. It is much more troublesome and difficult of cure than the real itch.

The itch is of so contagious a nature, that if one person

in a house catches it, it is sure to go through the family, and every one, man, woman, and child, become its victims. This very property will assist you in your judgment of the complaint.

The rank itch is the most common, and this is very easily distinguished, if you keep in mind, that it comes out first on the hands, and joints of the wrists, with intense itching, rendered more violent by warmth, and without any constitutional disorder.

Sulphur in one form or other must be used to get rid of this complaint; and the following prescriptions may be tried (should the first fail) in succession.

R. Sulphur one pound, lard one pound, mixed well together. Let this be well rubbed in all over the body for three successive nights.

R. Sulphur one pound, salt of tartar one ounce, powdered hellebore two ounces, lard one pound; let them be well mixed, and used like the above.

R. White hellebore root, bruised, four ounces; boil in two quarts of water to one quart: let this be used very frequently as a lotion.

Itch is said to depend upon the presence of minute insects, but it is doubtful whether they are a cause or an effect of the disease.

CHAPTER X.

Measles.—Scarlet Fever, Anginosa, and Malignant.—Small Pox.—Cow Pox.—Hooping Cough.

ERUPTIVE FEVERS.

MEASLES—RUBEOLA.—This complaint generally commences about ten or twelve days after the infection has been received, with fever, which after the third day is accompanied by inflammation and running of the eyes, a discharge from the nose, and sneezing, a frequent dry cough, hoarseness, and occasionally, sore throat. The breathing becomes difficult and oppressed, perhaps delirium occurs; on the fourth day round spots, somewhat resembling small flea bites, begin to come out on the forehead and chin, these gradually extend over the rest of the face, and by the next day spread over the body, chest, and limbs. As the spots increase in number, they form patches of a half-moon form, on the face they feel raised above the surface, but on other parts they are not sensible to the touch; on the seventh day, the rash begins to fade in the same manner it commenced; first from the face, and then from the chest, &c., till by the end of the eighth or ninth day, nothing remains but some discoloration of the skin.

The cough and fever are generally at the worst just before and just after the appearance of the eruption; the latter generally declines with it, but the cough sometimes increases, and the lungs become inflamed, or water on the chest comes on.

Treatment.—Give a mild dose of opening medicine, such as castor oil; let the sustenance be of the lightest and least stimulating kind, such as panada, &c.; give cold acidulated liquids, such as barley water, and lemon juice, sweetened, or ten grains of carbonate of soda and eighteen of tartaric acid mixed in half a pint of water; keep the apartment of a cool and even temperature. Unless the oppression of the breath is accompanied by a hard dry cough and *pain in the chest*, it may be considered as a natural symptom of the disease; but if it *is*, there is inflammation of the lungs, and, putting the measles out of the question, you must treat it as a case of that kind, taking away blood from the arm, or by cupping, and applying blisters, &c. according to the violence of the symptoms. If you *keep down* the inflammatory action at first by cool air and a perfect antiphlogistic regimen, affections of the chest and other bad symptoms will be less likely to occur. A purging generally takes place towards the close of the disease, and as it appears to be a means by which nature gets rid of inflammatory tendencies, it must not be checked, at all events for two or three days; and if it does not occur at the decline of the rash, you had better give some mild purgative to supply its place. Should it, however, continue so long as to weaken and debilitate the patient, it must be checked, and the strength supported by cordials and tonics, and nutritive diet.

To check the purging give a dose of the chalk mixture every two or three hours, and as a cordial the following mixture:

R. Camphor mixture six ounces, spirits of sal volatile two drachms; from one to two table-spoonfuls every three or four hours. Besides this, simmer one drachm of cinnamon in half a pint of port wine, and give a wine-glass full at a time according to the necessity, and support the system with a mild nutritive diet. Sometimes the eruption will suddenly disappear, and the oppression of the breathing increase to an alarming extent: in this case you must endeavour to re-produce it; and a draught of hot water, and putting the feet into hot water, will generally produce the effect.

SCARLATINA.

Simple scarlet fever consists in an eruption, or rather efflorescence, of a highly scarlet colour, preceded and accompanied by more or less fever. It is a very mild disease, and requires no interference further than keeping the patient cool, and his bowels open. After twenty-four hours or more

of precursory fever, a scarlet efflorescence comes out in patches on the face, and in twenty-four hours more it covers the whole body, except the trunk, in which it still continues in patches. The skin on the chest and limbs is generally rough. On the fourth day the eruption is at its height, and from that to the seventh gradually declines, so that by the eighth, it is wholly gone, when the skin dries and peels off.

Treatment.—You may give a small dose of epsom salts three times a day. Keep the patient cool, and the apartment well ventilated.

SCARLATINA ANGINOSA.—In this complaint obtain medical assistance as soon as possible, as, though not particularly dangerous in itself, it may degenerate into malignant scarlet fever, a fearfully dangerous disease. This form of the complaint is certainly more important than the last. It consists in the same fever and eruption accompanied by a sore throat, which sometimes occurs at the commencement of the complaint, but occasionally not until the eruption is at its height. The symptoms are altogether more severe, and the eruption does not come out till the second or third day.

Treatment.—The object is to keep down the heat and inflammatory action; and this will be best accomplished by giving such small doses of epsom salts as will keep the bowels relaxed; by sub-acid drinks, such as cold barley water, acidulated with lemon juice, and by sponging the body with cold water whenever the heat is above the natural standard, and the *surface dry*. The throat may be gargled with half a pint of infusion of roses, acidulated with sulphuric acid, or with a mixture of port wine and vinegar. The diet must be of the most simple and unstimulating kind.

A dropsical affection of the face and legs sometimes occurs in the third week, and continues a longer or shorter time. In general, it involves no danger; but now and then the patient is carried off by sudden affusion in the chest.

SCARLET FEVER.—MALIGNANT.—In this form of scarlet fever, the eruption is longer before it comes out, is of a less florid colour, is not so diffuse, and soon turns to a livid red.

The heat of the body is not *so steady*; the pulse is weak and feeble; and delirium and insensibility alternate, with fits of irritability, and violence. The mouth and throat soon become covered with livid ulcers, and encrusted with dark brown fur; and the breathing and swallowing are rendered very difficult, from the passages being clogged up with an adhesive phlegm, while so acrimonious a discharge flows from the nostrils, that the nose and lips are excoriated and blistered. In the last stages of the disease, blood flows from the mouth, throat, and other parts; livid blotches break out on the skin; and the patient either sinks in a few days, from mortification of some part of the intestinal canal, or lingers to the second or third week.

Treatment.—The moment you suspect the presence of this so often fatal disease, procure the attendance of a medical man, at whatever inconvenience or expense, as nothing but the most judicious treatment will save the life of the patient. You may, however, give a gentle emetic of ipecacuanha. But what are you to do if you *cannot* obtain professional assistance? In the first place, keep the apartment of a cool even temperature, and thoroughly ventilated; wash the skin, when hot and dry, with tepid vinegar and water, give cool sub-acid drinks; gargle frequently, with either a decoction of bark, acidulated with muriatic or nitric acid, or with a mixture of port wine, brandy and vinegar, or with an infusion of half a scruple of cayenne pepper in half a pint of hot water; clean away the sordes at the back of the mouth very gently by means of a piece of sponge tied on a stick. When the disease has advanced and the patient begins to sink, the pulse being low and the circulation in the skin weak, wash the skin with *hot* vinegar and brandy, give bark, port wine, and, if necessary, opium and the mineral acids, and endeavour to correct the putrescent tendency, by giving from a tea to a table-spoonful of yeast every hour; hang up rags dipped in a solution of chloride of lime or soda about the room; gargle the throat with warm spirits and mineral acid. Remember that the emetic may be given once or twice at the beginning of the disease, and also a mild purgative, but you must be cautious in the use of either, when the patient begins to grow weak and sink; remove the sordes from the mouth as often as possible, as, if swallowed, it will aggravate in a fifty-fold degree the putrid tendency.

If the patient recovers from this fearful disease, it will be a long time before his health is re-established.

During the first stage, before the symptoms have assumed a decidedly putrid character, give barley-water, slightly acidulated with lemon-juice or vinegar as a drink ; a dose of ipecacuanha, proportioned to the age of the patient, as an emetic, and a mild dose of calomel and rhubarb as a purgative, repeating the emetic once or twice, not only to clear the stomach of the vitiated matter that may be swallowed, but the trachea and bronchea also, of the viscid phlegm.

Gargle, first stage. Decoction of bark, six ounces ; tincture of myrrh, two ounces ; muriatic acid, one ounce ; or vinegar, two ounces.

Gargle, second stage. Solution of chlorate of soda, four drachms ; water, four ounces ; camphor mixture, four ounces ; or

Brandy, two ounces ; vinegar, two ounces ; camphor, one drachm ; infusion of capsicum, two ounces : mix. To be used warm.

Tonic Mixture.—Decoction of bark, six ounces ; muriatic acid, one drachm ; brandy, two ounces. To be divided into four doses, one every four hours :—for an adult.

SMALL-POX, VARIOLA.—Small-pox is, in most cases, preceded by considerable constitutional disturbance: sickness, difficulty of breathing, and occasionally delirium, take place just before the appearance of the eruption, which comes out on the third or fourth day of the fever in small round and hard pimples ; first upon the face, and gradually over the whole body. These pimples, which on the second day of their appearance feel like small seeds under the skin, and are surrounded with a circle of inflammation, gradually suppurate, and on the seventh day are filled with thick yellow matter. This thickens, scabs form on their tops, which fall off in a few days more, and nothing is left but dark discolourations of the skin, or, in some cases, depressions or pits.

Treatment.—Now in a simple case like this, nothing is requisite but to keep the patient cool, and the bowels open ; but sometimes, instead of proceeding in this simple manner, the oppression of the chest proceeds on to inflammation, the eruption does not come out, and internal disease proceeds with rapidity : if inflammation of the lungs does take place, which will be known by the difficulty of breathing being accompanied by pain at the chest and a hard dry cough, it must be treated as directed under the head Inflammation of the Lungs.

As I before observed, if the disease goes on mildly, no medical treatment further than a dose of castor oil, sub-acid drinks, and cool air, is necessary; but if the pustules, instead of secreting a thick healthy matter and being distinct, are filled with a watery liquid, pit down in the middle, and run into each other, it will be necessary to support the patient with bark and nutritious food; and *still more* necessary, if some of them are filled with a bloody liquid, or livid or purple blotches break out upon the skin; unless, however, from some peculiarity of constitution, or from improper treatment at first, small-pox will seldom degenerate into this state. In this, as in all other eruptive fevers, free ventilation is absolutely necessary; and even in bad cases this will *do much* towards recovery. Where, then, small-pox degenerates into what I shall call a typhoid or malignant fever, port wine and the mineral acids may be given in the same forms and manner as in malignant scarlet fever.

VACCINIA: COW-POX.—The cow-pox is generally received into the system by vaccination; on the third or fourth day after which, an inflamed spot is observed where the vaccine was introduced, which goes gradually on to suppuration till it assumes the character of a semi-transparent pearl-coloured vesicle, of a somewhat oval shape, more elevated at the sides than the centre; the margin shining, turgid, and somewhat rounded off, so as to extend over the base. This vesicle is composed of cells filled with matter, and communicating with each other. It is surrounded by a bright scarlet areola, or margin, well defined at the edges, and from half an inch to two inches in diameter. This margin begins to fade on the eleventh or twelfth day; after which, matter taken will not communicate the disease; and the lymph gradually thickens, till it at last concretes into a reddish brown scab, which by degrees becomes black, and about the twentieth day falls off, leaving a circular scar, a little depressed, and marked with minute pits according to the number of the cells. The cow-pox is a mild disease, that requires no medical treatment further than a dose or two of opening medicine.

The best time for vaccination is about six years old; but it may be performed at any period of life, when the body is free

from other disease or irritation. The lymph used should be taken from a healthy vesicle, between the eighth and the tenth day; if taken after the twelfth, it will probably be inert; and if after the scab has formed, it may produce a very violent, and even fatal disease. The beneficial effects of the vaccine, in mitigating, if not altogether preventing, the small-pox, are too well known to require any additional corroboration. All the discredit it has at any time acquired, has arisen from the imperfect performance of vaccination, or from the lymph being taken from unhealthy vesicles, or at improper periods, from the lymph being injured by age, or by want of care that the vesicle goes through its proper stages.

Besides these causes of failure, the presence of some eruptive and other complaints prevents the full impregnation of the system with the vaccine. The safest plan, therefore, will be, never to vaccinate when an eruptive disease is present; never to take lymph after the tenth day; to use it immediately if possible; and to watch that the vesicle goes through its proper stages.

HOOPING-COUGH.

Hooping-Cough.—A child has what you consider a common cough; in a few days, or perhaps weeks, you find this increase in violence, and accompanied by a spasmodic action of the chest and a peculiar noise or whoop. The paroxysms become more frequent and more distressing, producing considerable determination of blood to the head, and frequently causing sickness. After a time, the cough becomes more loose, and a considerable quantity of mucus is thrown up at the termination of each paroxysm. This is a most distressing complaint, and when it affects young children, frequently a fatal one. At the same time, it is almost impossible to mistake, if a person has once heard its peculiar sound.

Treatment.—In the first place, give an emetic of ipecacuanha proportioned to the age and strength of the patient, and repeat it every two or three days; keep the bowels open with castor oil, or small doses of Epsom salts. If the patient is old enough to understand its use, let him inhale the steam of hot water, by means of an inhaler, or, if you cannot procure that, a funnel inverted over a jug or pot, and give three or four grains of salt of tartar, three times a day, in a table-spoonful of water. The application of some kind of stimulus, externally to the chest, is occasionally of use; and the oil of caraway, mixed with olive oil, is a favourite remedy. The best external application, however, is the anodyne embrocation,* from a tea to a table-spoonful of which may be used night and morning, according to the age of the patient. If the determination of blood to the head is troublesome, a leech or two may be applied to the temples.

Perhaps there is no disease for which a greater number of nostrums have obtained a reputation. The principal one, however, is Roche's Embrocation, and certainly, whether a quack medicine or not, it does good. The external use of belladonna has been much lauded, and a variety of drugs have been given as internal remedies, but most of them are ineffectual, and those which are not, are not adapted for domestic practice.

* Olive oil, 1 oz.—laudanum, ½ a drachm.

CHAPTER XI.

POISONS.—Acids.—Alkalies.—Metallic.—Acrid.—Acro-Narcotic.—Narcotic.—Sedative.—Acrid Poisons.—Suspended Animation from Drowning, Cold, and Hanging.

No cases of disease require more immediate relief than those produced by poisons, some of which act with such fearful rapidity, that unless the measures to counteract them be taken very promptly, they will certainly be useless. To many poisons there are direct chemical antidotes; and though, in most cases, their removal by the stomach-pump would be preferable to a reliance upon these, it must be remembered, that they by no means prevent its use the moment it can be obtained, but rather render it more perfectly available. Nor is it in all cases that the pump can be employed.

The first means that would naturally suggest itself, in the treatment of these cases, is the removal of the poisons from the stomach; but, occasionally, this must be a secondary consideration, and this particularly as regards the acids and alkalies, for before it would be possible to do so, by either the pump or by the aid of emetics, the stomach would have received irreparable damage, and the removal of the poison at all would be almost a matter of indifference. In this country lives are frequently sacrificed to the ignorance of what to do in these cases, for I have known it impossible to obtain medical assistance till too late to be of any avail, even in the metropolis.

I have carried out the treatment to the last, because it is impossible to say at what period of each given case you may be able to obtain medical assistance, while in some it may not

be possible to obtain it at all. This will not prevent its being transferred to a medical man the moment it is possible to do so.

Some of the poisons, such as the acids, alkalies, and a few others, must be immediately detected by the taste; some again very soon after being taken by their action upon the throat, but others, and these, from the very circumstance, are the most difficult cases for domestic practice, not till the attention is called to the subject by the symptoms.

Though quickly removed from the stomach, a poison may have remained sufficiently long in that organ to set up a fatal inflammation, or to have been carried into the system by absorption. The first will be the case with the corrosive, the latter with the narcotic and sedative, while the acrid and acro-narcotic may partake of both. You will, therefore, have not only to remove or neutralise the poison, but to counteract its secondary effects.

The secondary effects of the acid, alkaline, and metallic poisons are inflammation and destruction of the stomach itself. The latter is, of course, irremediable, and the inflammatory action must be checked before it produces mortification. There will be yet another set of symptoms, the effects of the secondary ones: these consist of debility, obstinate derangement of the stomach and bowels, &c.

The primary effects of the acrid poisons are excessive irritation, proceeding on to inflammation and mortification; the secondary, great exhaustion and debility.

The primary effects of the acro-narcotics are excessive irritation, proceeding on to inflammation and mortification; the secondary, great exhaustion and debility.

The primary effects of the narcotic poisons, stupor and insensibility; the secondary, considerable nervous irritation; and the third series, great exhaustion and debility.

The sedative poisons act by decreasing the action of the heart and arteries, through the medium of the nervous system; and these effects are so rapid, that in the case of

some (Prussic acid, for instance,) death is caused almost instantaneously.

The acrid and alkaline poisons act immediately on the parts with which they come into contact, and with such frightful rapidity, that a few minutes may render destruction inevitable.

The action of the mineral poisons is the same, but they possess a secondary action upon the nervous system, when carried into the circulation by the absorbents.

You will, therefore, have not only to counteract the effect of the poison, and remove it from the stomach, but to combat the after symptoms.

Though I have given the effects of the poisons as they go on to a fatal termination, the safety of the patient depends upon their being counteracted at an early period. If, for instance, the matter thrown up and passed by stool, be very fœtid, and contains shreds of animal matter, (you must not, however, mistake the decomposed *contents* of the stomach for this,) the case is, of course, hopeless.

THE ACIDS.

Antidotes—Magnesia, carbonate of soda, chalk, and other alkalies.

1. *Sulphuric Acid—Vitriolic Acid—Oil of Vitriol*—Is, in a pure state, a colourless liquid, powerfully escharotic, and nearly double the weight of water. It becomes cloudy and dark-coloured by exposure to light.
2. *Sulphuric Acid Diluted—Elixir of Vitriol—Vitriol*—The last acid diluted with eight times its quantity of water.
3. *Muriatic Acid—Spirits of Salts*—A yellow-coloured liquid, powerfully escharotic, and giving out very penetrating and pungent fumes.
4. *Nitric Acid—Double Aqua-Fortis*—A colourless liquid,

powerfully escharotic, and giving out very penetrating and suffocating fumes.

5. *Nitro Muriatic Acid—Aqua Regia*—A mixture of the last two acids, in the proportion of one part of the nitre to two of the muriatic acid.

Nitrous Acid—Single Aqua-Fortis—A transparent liquid, of a light straw colour, giving out very penetrating fumes.

Oxalic Acid—A substance somewhat resembling Epsom salts. It gives out a crackling noise during its solution.

Pyroligneous Acid—A powerful acid, resembling water in appearance, eight times as strong as distilled vinegar, and having a very pungent scent.

Tartaric Acid—Generally met with in the form of a white powder.

The above acids are powerfully escharotic, and decompose, *i. e.* destroy, animal matter with great rapidity. If taken into the stomach in an undiluted state, and allowed to remain there even a short time, they eat away the coats of that organ; while, in a weaker state, they set up inflammation, that requires the most active treatment to combat.

When an acid and an alkali are mixed, they combine together, and a neutral salt, possessing very different, and comparatively harmless, properties, is the result. Thus sulphuric acid and magnesia give sulphate of magnesia, or Epsom salts; the same acid and soda, sulphate of soda, or glauber salts; and with potash, sulphate of potash, or sal polychrest. In the same manner the other acids form muriates, nitrates, oxalates, &c.

When an acid has been taken into the stomach, advantage is taken of this chemical principle, and an alkali employed to neutralise its effects.

Symptoms.—A burning and austere taste, burning pain in the mouth, œsophagus, and stomach; this is soon followed by vomiting or attempts to vomit, and after a short time, the matter thrown up is mixed with blood, and destroyed and blackened animal fibre, and is very fœtid and offensive; the mouth is dry and

parched, the skin hot and dry, and the breathing hurried and oppressed.

Treatment.—The instant it is known that one of these acids has been taken into the stomach, you must commence remedial measures. Mix half an ounce of magnesia, subcarbonate of soda or potash, carbonate or subcarbonate of potash, chalk, soap, or whitening in a pint of water, and let this be taken as quickly as possible, remembering that one ounce of sulphuric will require two and a half ounces of magnesia and two and a quarter of carbonate or subcarbonate of soda or potash; while, for nitric, muriatic, and oxalic acids, a little more than half the quantities will be sufficient. Let the alkaline solution be continued till the acid is fully saturated, at the same time filling the stomach with tepid liquids to urge it to throw off its contents.

If the poison has remained long enough to produce inflammation of the stomach, it must be treated as such, but you must keep in mind that the symptoms will, in all probability, be modified by the effects of the poison.

ALKALINE POISONS.

Antidotes.—Vinegar, lemon-juice, or other vegetable or mineral acid, properly diluted.

Alkalies are more caustic as they approach a state of purity. Thus the solution of potash, or oil of tartar, which holds pure potash in solution, destroys animal and vegetable matter with great rapidity. The subcarbonate of potash, or salt of tartar, in which the potash is combined with a small dose of carbon, is still powerfully escharotic; while the carbonate, in which the proportion of carbonic acid is greater, is infinitely less so.

Advantage is taken of the same chemical principles in the treatment of the alkaline as of the acid poisons; and as the alkalies are employed to neutralise the acids, so the acids are used to neutralise them.

Ammonia.—There are two solutions of ammonia: the solution of ammonia, and the solution of the subcarbonate, or smelling salts; and accidents occasionally take place from mistaking the one for the other.

The *first* is a powerfully caustic and pungent liquid, resembling water in appearance, holding pure ammonia in solution. The other, a solution of the carbonate, is far less powerful.

Symptoms.—A sense of suffocation and strangulation, if the dose be very strong, burning pains in the mouth, œsophagus, and stomach, followed by vomiting and purging, the ejected matter being mixed with matter and blood, and very offensive; the throat and chest feel as if they contained a furnace; there is determination of blood to the head, convulsions and delirium come on, and the sufferer dies.

Treatment.—Endeavour to reduce the poison to a harmless state by giving vinegar or some other acid, and then give copious draughts of tepid demulcent liquids, so as to produce vomiting: should inflammation of the stomach come on, it must be treated as recommended under that head. Should the determination of blood to the head be urgent, a few leeches may be applied to the temples, and the feet put into hot water.

Cases arising from the carbonate of ammonia and its solution all produce the same symptoms, and must be treated in the same manner.

Potash.—There are two solutions of potash: the solution of potash, and the solution of the subcarbonate. They bear the same relation to each other as the two solutions of ammonia, and are even more liable to mistake.

The caustic solution of potash, or a very similar preparation, is sold under the name of oil of tartar, and is used to clean pewter pots, and for other domestic purposes. It is very cheap, and is sold at the oil and colour shops, being, nine times out of ten, sent out without labels; so that the wonder is, not that accidents should occasionally happen, but that they do not occur more frequently.

Symptoms.—Urinous taste in the mouth, with great heat in the mouth, œsophagus, and stomach; cholic pains in the stomach and belly: vomiting the matter having an alkaline taste, and being occasionally mixed with blood; violent convulsions; purging; and, if not relieved, death.

Treatment.—The same as recommended under the head Ammonia. The subcarbonate of potash, carbonate of potash, and carbonate and subcarbonate of soda, produce the same effects, and must be treated in the same manner.

Lime.—I can scarcely imagine how lime can be taken accidentally in any poisonous quantity; it has, however, been swallowed, and produces the same effects, and requires the same treatment, as the other alkalies.

Tests.—Ammonia may be detected by its pungent odour, and by forming a blue colour by the addition of sulphate of copper, and by its changing vegetable reds to green.

Potash.—An oily feel: changes vegetable reds to green. To distinguish it from soda, evaporate any of the poison that remains, to dryness, and expose it to the air, when it will, if potash, run into a liquid.

The next class of poisons I will describe, are those having the same corrosive properties as the acids and alkalies; to which another, or secondary, action is added. Thus the preparations of antimony are all more or less emetic or purgative; those of copper, emetic, &c. This class of poisons includes most of those having a metallic base, either in the form of an oxide, as arsenic, or combined with acids under the name of metallic salts, as the sulphates of zinc and copper, &c.

Antimony: Antidote.—Alkaline solutions; decoction of yellow bark; green tea.

There are a great many preparations of antimony, only two of which, however, are likely to be met with in the common routine of life. These are the muriate, or, as it is vulgarly called, butter of antimony; and the tartrate of antimony, or tartar emetic. All the preparations of this metal are said to be decomposed by a decoction of the yellow Peruvian bark; but as that may not always be procurable, green tea may be used as a substitute. I should always, however, prefer neutralising the superabundant or excess of acid in these two preparations, before trusting to the bark.

The *Muriate of Antimony* is a solution of antimony in muriatic acid, or spirits of salts. It is used to clean boot-tops and other light leather, and is powerfully corrosive.

Symptoms.—Nearly the same as those caused by sulphuric acid and other corrosive poisons.

Treatment.—Give immediately magnesia or some other alkali mixed in water, as directed under the head Acids, followed by draughts of decoction of yellow bark or green tea. If symptoms of inflammation of the stomach come on, they must be combated as directed under that head.

Tests.—Butter of antimony is decomposed by water, which throws down a white precipitate.

Tartar Emetic.—If in solution (water,) tincture of galls will produce a copious whitish yellow precipitate; if in wine, the tincture of galls gives a bright violet precipitate.

Tartar Emetic: Symptoms.—Violent sickness, accompanied by great heat and pain in the stomach; twisting cholic pains in the bowels; hurried and oppressed breathing; violent pains in the legs and thighs. The pulse sinks, the patient is exhausted, and dies. *Treatment.*—Give some alkaline solution; and as soon as it can be prepared, either the decoction of yellow bark or green tea. Should the stomach remain in an irritable state after the poison has been thrown off, no inflammation being present, give a grain and a half of watery extract of opium, or twenty drops of laudanum, in a saline draught every six hours.

ARSENIC.

THE white, and the yellow oxide of arsenic, or orpiment, are those most generally met with; the one being occasionally used for poisoning rats, and in some diseases of sheep; and the other for purposes of the same kind. However prompt you may be in the treatment of cases of poisoning by this metal, they will be attended with considerable danger. If it has been taken in a liquid form, every endeavour should be made to remove it from the stomach as quickly as possible; and in this case, the object may be effected by the stomach-pump. If, however, the poison has been swallowed in bread, in pudding, or some other *solid*, you will have to trust in a great measure to emetics. The symptoms are a styptic, austere

taste in the mouth (if taken in liquid); burning pain in the mouth, œsophagus, and stomach; violent vomiting (unless prevented by stricture of the œsophagus) of black fœtid matter and blood; an increased flow of saliva or spittle; cholic pains in the bowels; purging, the matter thrown off being dreadfully offensive, black, and mixed with matter and blood, and shreds of animal matter. The breathing becomes oppressed and hurried; there is great anxiety about the heart; the pulse is irregular; cold sweats and convulsions come on; livid blotches break out on the skin; and the sufferer dies in the most excruciating agony. Added to these symptoms, a complete or partial suppression of urine takes place; if partial, it is frequently mixed with blood. *Treatment.*—Remove the poison if possible by means of the stomach-pump; and while that is getting ready, give draughts of chalk and water, lime-water, or gum water, or sugar and water. If the stomach-pump cannot be used, give thirty grains of ipecacuanha, or twenty grains of white vitriol, or a large teacupful of strong mustard tea; and promote the vomiting by giving draughts of sugar and water, and tickling the fauces, with a feather or the finger. When you have removed the poison, or as much of it as you can, give occasionally small quantities of chalk and water, or lime and water; and this, as far as the primary symptoms are concerned, is all that can be done with advantage. The secondary symptoms must be treated according to the directions under the head Inflammation of the Stomach.

MURIATE OF BARYTES.

Symptoms.—Very similar to those produced by the other corrosive poisons. *Treatment.*—Give immediately draughts of the following mixture: gum arabic, or sugar, one ounce;

Epsom or Glauber salts *, one ounce; water, two pints. Let this mixture be taken a tumbler at a time, giving in the intervals draughts of tepid water, or gum, or sugar and water, so as to produce vomiting, by suddenly distending the stomach. For secondary symptoms, see Inflammation of the Stomach.

COPPER.

Antidote—Sugar, Coffee.

Cases of poisoning by this metal sometimes occur from the use of copper saucepans, &c. The *symptoms* are: dry, parched tongue, a coppery taste, and eructations; constant spitting, sense of straitness, and strangulation; dragging pain at the pit of the stomach; vomiting, or ineffectual attempts to vomit; violent cholic, tenesmus, bloody stools, and other symptoms common to the corrosive poisons.

Treatment.—Give immediately twenty-five grains of white vitriol in two ounces of water, and then large draughts of sugar and water; and as soon as it can be prepared, strong coffee, well sweetened with sugar. For the secondary symptoms see Inflammation of the Stomach.

Sulphate of Copper—Blue Vitriol—Blue Stone.—Symptoms: violent vomiting, accompanied by the other symptoms common to the corrosive poisons. *Treatment.*—Sugar and water; strong coffee; preceded by one of the alkaline solutions. For secondary symptoms, see Inflammation of the Stomach.

Ammoniated Copper.—Seldom met with. Symptoms similar to those produced by verdigris. *Treatment.*—Sugar and water; strong coffee. *Secondary* symptoms; see Inflammation of the Stomach.

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* The sulphuric acid, having a greater affinity for barytes than for magnesia or soda, combines with it, and forms an insoluble compound; while the alkali, combining with the muriatic acid, forms muriate of soda (common salt), or muriate of magnesia.

Mercury—Oxymuriate—Corrosive Sublimate.—Acrid, austere taste; burning in the throat and stomach; salivation, accompanied by the mercurial fœtor; with the other symptoms common to the corrosive poisons. *Secondary symptoms;* see Inflammation of the Stomach. *Treatment.*—White of egg well beaten up with water; the albumen decomposes the muriate, and reduces it to the state of calomel. If eggs cannot be procured, glue, gum, sugar and water, or linseed tea, may be substituted. Let one of these be drunk in large quantities, so as to provoke the stomach to throw off its contents, which may be facilitated by giving a strong dose of mustard tea. The nitric oxide, or red precipitate, the yellow sulphuret, or Turbeth's mineral, may be subjected to the same treatment. Secondary treatment, see Inflammation of the Stomach.

SILVER.

Nitrate of Silver—Lunar Caustic.—This preparation forms the basis of permanent ink, and most of the dyes for the hair. Accidents occasionally arise from their being taken by mistake. The *symptoms* are similar to those produced by the other metallic poisons. The *treatment* consists in decomposing the poison by means of a solution of common salt. The *secondary* symptoms, as directed under the head Inflammation of the Stomach. Dissolve a table-spoonful of common salt in water, and let it be drunk immediately, repeating it till the poison is decomposed and thrown off by vomiting; then let draughts of tepid water be taken till the stomach is fully cleared out. *After-symptoms,* see Inflammation of the Stomach.

TIN.

Muriate of Tin.—Muriate of tin is used in the arts of dyeing; it is a corrosive metallic poison, causing the same *symptoms* as the other metallic poisons.

Treatment.—Give milk (which has the property of decomposing the muriate) in draughts. Then a strong dose of mustard tea, and large draughts of tepid milk and water, to produce vomiting. The secondary symptoms will probably be inflammation of the stomach, and must be treated as such.

Sulphate of Zinc—White Vitriol.—This metallic preparation is a powerful emetic; for which purpose it is used in many cases of poisoning. The symptoms it produces are very similar to those caused by the other metallic poisons; and the *treatment* consists in mitigating its emetic action. This may be done by giving some alkali mixed in milk; given in quantities to dilute the poison, and render the vomiting easier. The irritability of the stomach may be curbed by giving a grain and a half of watery extract of opium, or twenty drops of laudanum, in a saline draught every six hours. If inflammation comes on, it must be treated according to the directions under that head.

If one of the corrosive poisons be allowed to remain beyond a certain time in the stomach, before it is removed or decomposed, a degree of inflammation will be set up that, unless counteracted with promptitude, will end in mortification and death.

The *symptoms of inflammation* of the stomach are: great pain and tension, increased by the slightest pressure, and aggravated by taking either liquid or solid food, which is immediately rejected. The pulse is not much to be depended upon; and the other symptoms may be so amalgamated with the effects of the poison, as in a great measure to alter their features. If, however, there be pain evinced *on pressure*, tension, and vomiting, acute inflammation is present, and

must be combated by immediate bleeding. But if there is only a degree of *soreness*, with great irritability of stomach, the pain *not increased by pressure*, it may be referred to what I shall call chronic inflammation, and relieved by means of opium. One grain of the watery extract, or twenty drops of laudanum, may be given every six hours; rubbing in a teaspoonful of laudanum and one of oil over the region of the stomach, and fomenting it occasionally with the anodyne fomentation mixture, and by blisters and counter-irritants.

THE ACRID POISONS.

Antidotes.—Demulcents, such as oil, &c. The stomach-pump, emetics.

The acrid poisons produce excessive irritation of the stomach, bowels, and in most cases, of the sexual organs. They are, with the exception of cantharides, vegetable productions, and are many of them used in medicine and surgery. I have selected a few: but all poisons producing the same symptoms may be referred to this class, and treated as such. Cantharides or Spanish flies form the active principle in blistering plaster, and some of the embrocations used in rheumatism; and they are occasionally given internally in the form of powder and a tincture. They are of the class Insecta, order Cleoptera, about half an inch long, of a green gold colour, with considerable metallic lustre; their taste is hot and acrid, and they give out a peculiar and sickly smell when powdered.

The *Symptoms* are, heat and pain in the mouth, œsophagus, and stomach, followed by vomiting or ineffectual attempts to vomit, griping pains in the bowels, hypercatharsis or purging, the matter thrown up and passed by stool being frequently mixed with matter and blood, and having the peculiar faint smell that accompanies the drawing of a blister; the breathing is oppressed and hurried, the pulse strong, quick, and irregular, and the skin hot and dry; and there is generally great irritation of the sexual organs.

Treatment.—There are no chemical antidotes to this class of poisons, and it will be the best to remove them by means of the stomach-pump; but you may not be able to do this; if so, give immediately a quarter of a pint of warm olive oil, and follow it by *draughts* of the following mixture, till the stomach is fully cleared out:—Beat two ounces of oil with the yolk of two eggs, and gradually add two pints of soft water. Having removed the poison from the stomach, the cure will be resolved into one of inflammation of that organ, and perhaps the bladder or lungs, and must be combated by bleeding and the strictest antiphlogistic regimen. See Inflammations.

Savine.—The effects are very similar to those produced by Cantharides, and must be combated in the same manner.

Hellebore, Black.—Symptoms nearly the same as those produced by Cantharides; accompanied by numbness of the mouth. The first symptoms soon followed by sudden sinking and exhaustion.

Treatment.—Firstly, the same as for cantharides: then support the patient by cordials.

Hellebore White.—Symptoms and treatment the same as the last.

Sow-Bread.—Symptoms and treatment, see Savine. This is the Cyclamen Europeum.

Spurge.—Symptoms and treatment, see Savine.

Gamboge, Colocynth, Scammony.—These are strong drastic purgatives frequently used in medicine, and causing, when taken in excessive doses, or under peculiar circumstances, violent emetic and purgative effects, which must be combated in the same manner as directed under the head Cantharides.

THE ACRO-NARCOTIC POISONS.

The first effects of poisons of this class are very similar to the last, but they are followed by sudden sinking and exhaustion. I will select a few examples; and any vegetable poisons

producing the same effects may be referred to the same class, and treated according to the same rules.

The *Elaterium*, or wild cucumber, is kept in the form of an extract or rather dried fæcula; it is a very powerful drastic purgative, and is given in cases of dropsy and some other complaints, in which a discharge of watering stools is required. It is very uncertain in its effects, and accidents sometimes occur from its acting more powerfully than intended.

The symptoms are—nausea, violent vomiting, griping, cholic, pains, purging of copious watery evacuations, in severe cases mixed with blood. These symptoms are followed by sudden sinking and debility; cold clammy perspiration breaks out; the extremities become cold, and the patient dies.

Treatment.—Remove as much of the poison as you can by means of the stomach-pump, or by filling the stomach with demulcent liquids, as recommended under the head Cantharides. You must then endeavour to support the patient, and stop the hypercatharsis or purging by means of cordials—opium aromatus, and the chalk mixture. The pulse and constitution sink very suddenly in these cases, and I have never seen active inflammation present. The best cordials are opium, camphor, and brandy; and if the purging is very violent, they may be combined in the following manner: rub two drachms of prepared chalk and one drachm of gum arabic well together; add gradually six ounces of camphor julep, two ounces of brandy, and one drachm of laudanum, one fourth to be taken every two hours; foment the stomach with the anodyne fomentation quite hot, and throw up occasionally a clyster made of three ounces of thin starch and forty drops of laudanum. Decrease the use of the stimulus very gradually, and as the hypercatharsis grows less you may diminish the quantity of chalk, and at last leave it off altogether. The patient must live for some time upon arrow-root, sago, rice, &c. &c., and return to his usual diet very gradually.

Fool's Parsley, Lesser Hemlock.—This plant is occasionally eaten by mistake for the common parsley, to which it bears some resemblance.

Symptoms.—Great heat in the stomach, thirst, vomiting and purging, followed by sudden sinking.

Treatment.—An emetic composed of twenty or twenty-five grains of ipecacuanha; promote its action by means of some tepid demulcent liquid, such as gum or barley water, slightly acidulated with vinegar or some other vegetable acid. Should determination

of blood to the head take place, apply a few leeches to the temples, and put the feet into hot water.

Should the patient sink, the same treatment must be adopted as recommended under the head Elaterium.

Meadow-Saffron, Colchicum.—Has long been used in the composition of nostrums for the gout and rheumatism, and has lately been introduced into the Pharmacopœia, under the forms of tincture and wine.—*Symptoms:* nausea, griping, pains in the stomach, and, when the bowels have been previously costive, great determination of blood to the head. Sudden sinking, convulsions, and death.

Treatment.—Evacuate the stomach by tepid demulcent liquids, and by tickling the fauces with a feather or the finger, so as to produce vomiting as quickly as possible; then cordials and aromatics, as directed under the head Elaterium. When determination to the head takes place, putting the feet into hot water will relieve it without resorting to the abstraction of blood.

Rue, and its essential oil.—Nearly the same symptoms and treatment as Meadow-Saffron.

Mushrooms and other Fungi.—These vegetable productions are generally classed among the acro-narcotic poisons. There are many varieties both of the edible and poisonous kinds; an acquaintance with which can only be acquired by opportunities of inspecting and comparing them. Those kinds, however, that are considered obnoxious do not disagree with every one, some persons being able to eat them with impunity. The Russians eat many kinds that are considered absolutely poisonous in this country, and this is said to proceed from their habit of stimulating the stomach to digest them, with ardent spirits.

The symptoms, which do not sometimes come on for hours after they are eaten,—a feeling of fulness and distension in the stomach, nausea and vomiting, accompanied by griping pains in the bowels, purging; after the symptoms come cramps in the limbs, delirium, and occasionally death.

Treatment.—Evacuate the bowels and stomach by means of emetics and purgatives combined; give 20 or 25 grains of ipecacuanha in a solution of 1½ ounce of Epsom or Glauber salts, for

your dose had better be ample at once; after the stomach and bowels have been well cleared out, give 30 or 40 drops of æther, in a wine-glass full of gum water, every three or four hours, and let the patient drink small quantities of weak brandy and water, acidulated with lemon juice, or some other vegetable acid.

I have seen slight attacks from this cause relieved by giving a glass of brandy, followed by a tumbler of hot water, repeated till the action of the stomach was excited.

NARCOTIC POISONS.

Antidotes.—Emetics.—The stomach-pump, vegetable acids, coffee.

Of all the narcotic poisons, opium, and its preparation, laudanum, are the two from which accidents most frequently occur. I will, therefore, select them as specimens of the class.

Opium is a vegetable extract, or inspissated juice, prepared from the capsule of the white poppy. It is of a dark brown colour, has a hot and acrid taste, and a peculiar disagreeable smell. Laudanum is a solution of opium in spirits of wine.

Opium produces very different effects upon different constitutions, and under different circumstances, and according to the dose in which it is taken; and when taken in the form of laudanum, its action is much quicker than when swallowed in a solid form.

In small doses opium acts firstly as a stimulant, its narcotic action being secondary; while if the quantity taken be very large, the stimulating effects are altogether wanting, and the "potent poison quite o'ercrows the spirit" at once.

When any one not accustomed to its use has taken a large dose of opium, he soon falls into a state of insensibility and torpor, from which he, in all probability, sinks into the arms of death; and the object in the treatment of these cases is, to prevent this stupor from commencing. The moment, then, it is known that a dose of opium or laudanum, sufficiently large to be dangerous, has been taken into the stomach, either endeavour to remove it

by means of the stomach-pump, or an emetic. The best emetic for the purpose is, the sulphate of zinc, or white vitriol, of which 20 or 25 grains may be taken in two ounces of water; endeavour to cause vomiting by tickling the fauces, by pressing on the pit of the stomach, &c., above all, keep the patient awake, and, if possible, free from lethargy, by making him walk in the open air, by rubbing, shaking, or any other means. When the poison has been evacuated from the stomach, give very frequently, small quantities of vinegar and water, or other vegetable acid, and strong coffee; and pursue this plan till the effects of the poison have passed away. It may happen, however, that the accident is not discovered till the person has fallen into a state of stupor. In this case, if you cannot get an emetic down by the mouth, or use the stomach-pump, dissolve 20 grains of tartar emetic in four ounces of water, and throw it up as a clyster. Endeavour to remove the state of lethargy by the application of stimulants to the nose, by rubbing the body, by the application of cold to the head, and heat to the feet. Having produced vomiting by these means, by tickling the fauces, and by slight pressures upon the pit of the stomach, the case must be treated as before directed.

When the effects of the opium go off, reaction may take place, and determination of blood to the head be the consequence; or it may occur before this stage commences. In either case you had better apply heat to the feet, and take some blood from the temples or back of the neck, by means of leeches or cupping, and give a good strong dose of opening medicine, such as five grains of calomel, followed in an hour by a dose of black draught—repeated every two hours till it acts freely. Should the patient fall into a state of weakness and debility, it may be necessary to give stimulants and aromatics, such as the following:—half a pint of camphor mixture, two ounces of brandy, and two drachms of spirits of sal volatile, divided into four doses, and taken every two or three hours, or as often as circumstances may dictate. One of the most unpleasant symptoms of the narcotic poisons is a disagreeable itching and tickling of the skin, particularly of the tip of the nose, the ears, eyelids, &c.

Belladonna.—Deadly Nightshade.—Antidote, vegetable acids.

This plant is used in medicine, but in very minute doses.

Symptoms.—Heat and dryness in the mouth and the passages leading to the stomach, nausea, sickness, swimming in the head, dimness of sight, caused by the expansion of the iris; wild delirious laughter, convulsions, and death.

Treatment.—The same as recommended under the head Opium, except that the emetic acts with more certainty, if the vegetable acid is given *before the emetic.*

Coculus Indicus, or Indian Berry.—A blackish-brown berry, about the size of a large pea, internally white, having a very bitter and permanent taste; said to be used by the ale and porter brewers, to increase the intoxicating effect of their beer.

Symptoms.—Similar to those of intoxication from ardent spirits, not unfrequently ending in brain fever and apoplexy.

Treatment.—Emetic, two grains of ipecacuanha, and two or three of tartar emetic, then vinegar and water, or other vegetable acids. If determination of blood to the head, leeches to the temples. The feet to be put into hot water, and strong purgatives exhibited.

Hemlock.—Conium Maculatum.—Both the seeds and leaves of this plant are used in medicine, and the latter are applied externally in the form of a poultice.

Symptoms.—Sickness, swimming in the head, dilatation of the pupils, dimness of sight, wild delirium, sinking, difficulty of breathing, faintings, convulsions, and occasionally death.

Treatment.—The same as recommended under the head Opium.

Henbane.—Hyoscyamus.—Both the leaves and the seeds are poisonous, producing the same symptoms as Hemlock, and the treatment may be the same.

Nux Vomica.—Vomiting Nut.—Is the seed of a species of strichnos. They resemble dried Windsor beans in appearance, but are of a somewhat darker colour. They are highly poisonous, causing death by the action of a narcotic principle, called strichnine. Like coculus indicus they are said to be used by the ale and porter brewers.

Symptoms.—Feeling of intoxication, swimming in the head, spasmodic rigidity, twitchings of the arms, great difficulty of breathing, convulsions, and occasionally death.

Treatment.—The same as recommended under the head Opium.

Stramonium.—Thorn Apple.—Datura Stramonium.—A narcotic and antispasmodic, in doses of from one to two grains, gradually increased to twelve in the twenty-four hours.

Symptoms.—Swimming in the head, succeeded in some cases by furious delirium, insensibility, and sometimes violent convulsions, paralytic affections, cold perspirations, and sometimes death.

Treatment.—The same as for opium, keeping in mind that if there is much determination of blood to the head, you must take away blood from the arm, or from the back of the neck, by cupping; you will also find it an advantage to give a smart purgative early, such as five grains of calomel, followed by a strong dose of black draught, and a purgative clyster.

Tolacco.—Though so commonly used, and under such a variety of forms, is a narcotic poison of no mean power; even the external application of a strong infusion to a wounded or excoriated part, will occasionally produce very powerful effects. I have more than once seen most dangerous symptoms produced by excessive smoking.

Symptoms.—Nausea, vomiting, swimming in the head, headache, stupor, stertorous breathing, sudden sinking, cold sweats, convulsions, and death.

Treatment.—Four grains of tartar emetic in water—draughts of tepid water. When the stomach is cleared out, the vegetable acids, as recommended under the head Opium; and as soon as it will stay on the stomach, a strong dose of opening medicine. If determination of blood to the head, cold applications to it; the hot foot-bath, and bleeding. If the patient should suddenly sink, brandy and water, combined with the vegetable acids, or some other stimulus and acids.

SEDATIVE POISONS.

Digitalis.—Foxglove.—Under proper management foxglove is one of the most valuable medicines we possess, but at the same time one of the most dangerous ones. We seldom meet with accidental cases of poisoning by this plant; for while it is perfectly well known to most people, it possesses no temptations for children.

Symptoms.—Nausea, giddiness, a peculiar and painful feeling of faintness and languor, the sight is indistinct, the pulse weak and irregular, sometimes scarcely perceptible, hiccup, cold sweats, and convulsions follow, and are the precursors of death.

Treatment.—If the poison has been recently taken, remove it by the stomach-pump, or by giving 20 grains of sulphate of zinc, white vitriol, and promote the vomiting by giving tepid liquids, to which some stimulant has been added, such as a tumbler of warm water with a table-spoonful of brandy. Put the feet and legs into warm water, or, if possible, the warm bath, and unless *contra-indicated by circumstances*, some sort of stimulant must be given, such as six ounces of camphor mixture, two ounces of brandy, and three drachms of spirits of sal volatile, divided into four doses, and taken every three or four hours, or more frequently if necessary; if no other stimulant is in the way, four table-spoonfuls of brandy in hot water, may be taken occasionally. The same means may be used to rouse the system as recommended under the head Opium, such as frictions over the body, either with a coarse towel or with the hand, by stimulants to the nose, &c. &c.

Laurel Water.—Black Cherry Water.—Essential Oil of Bitter Almonds, &c.—The poisonous properties of these preparations depend upon the presence of prussic acid. In large quantities they may produce sudden death; in smaller ones, sudden sinking, faintings, confusion of the head, indistinct vision, &c. &c.

Treatment.—In these cases you must immediately give powerful stimulants, such as a drachm of æther or spirits of sal volatile in brandy and water, or camphor mixture, repeating the dose at very short intervals till the urgency of the symptoms is reduced, the pulse rises, and the patient revives. Stimulants must be applied to the nose, the body rubbed with a coarse towel, the feet and hands put into hot water, and mustard poultices applied to the legs.

Prussic Acid.—Hydroscianic Acid.—This is the most powerful and sudden poison known in this country. The action of a large quantity upon the heart and nervous system is so immediate, that it is almost impossible to administer remedies with any chance of counteracting its effects. When, however, the dose is not sufficient to produce immediate death, *the symptoms* are, heaviness and weight in the head, dimness of sight, a sickening sense of faintness, and a very small vibrating pulse, with oppression at the chest, dilatation of the

pupils, and fainting, from which, if the curative means are ineffectual, the patient sinks into the sleep of death.

Treatment.—Here will be no time to wait for professional advice; stimulants must be given instantly and liberally internally, and used unremittingly externally, employing those that can be obtained with the least delay; a drachm of æther, sal volatile, or hartshorn, in a glass of strong brandy and water, repeating it at short intervals till the stimulant effect is fully produced; put the patient into the hot bath if possible, if not, apply flannels wrung out of hot water to the stomach, chest, and feet; apply hot bricks to the feet, and put two cupping-glasses between the shoulders, and let them remain on till they produce an accumulation of serum. If these means are not sufficient, increase the strength of the stimulus—give pure brandy, and throw up stimulating clysters.

LEAD.

All the preparations of lead are more or less poisonous, producing a powerfully sedative action upon the human economy.

The Carbonate of Lead, or White Lead, forms the basis of white paint, and is more frequently introduced into the system by means of absorption, than by the stomach.

Acetate of Lead.—Sugar of Lead.—Somewhat resembles loaf sugar, and is a composition of acetic acid or vinegar, with the metallic base. It is used in the arts and in medicine, and, from its resemblance to sugar, has been occasionally taken by mistake.

Goulard's Extract, or Subacetate of Lead.—A solution of lead in acetic acid. Diluted, it forms the goulard water of the shops.

There are many other preparations of lead, but as they all produce nearly the same effects, and require the same treatment, they require no further specification than their names. They are, the semi-vitreous oxide or litharge, red lead, &c.

Symptoms.—Obstinate costiveness, accompanied by violent cholic, the belly feeling knotted and drawn in: the breathing is,

laborious, the pulse small and hard; tremblings and nervous twitchings take place, which frequently end in confirmed paralysis.

Treatment.—If the poison has been taken into the stomach, it must be removed, either by means of the stomach pump, or if that cannot be used, by giving 20 grains of ipecacuanha, and two or three of tartar emetic, and encouraging the vomiting by draughts of tepid water, rendered thicker by the addition of sugar or gum. As soon as the stomach has been well cleared out, give a strong dose of castor oil (1 or 1½ ounce), and repeat it if it does not act fully. Should, however, the spasms be very severe and painful, and the pulse hard, take away from 20 to 24 ounces of blood, and when the castor oil has acted, a dose of 40 or 45 drops of laudanum, fomenting the whole belly with hot anodyne fomentation. Should the belly be very much swollen, and the bowels very obstinate, give a drop or two of croton oil, made into a pill with crumbs of bread, and follow it by a strong purgative clyster. The croton oil must be repeated till it acts freely, and I have known 14 drops taken before it has, for in these cases the bowels are peculiarly obstinate. During this time the patient must drink freely of mucilaginous liquids, and have a large mucilaginous clyster frequently administered, such as mutton broth, or linseed tea with olive oil.

When the poison has been absorbed by the skin, the emetic or stomach-pump will be useless, but the other means must be the same, and they must be pursued till the bowels are brought again to their natural state, and the bad symptoms are banished. In many of these cases it is almost impossible to make the bowels act, till the spasm has been reduced by bleeding. Should inflammation of the stomach or bowels, or determination of blood to the head, take place, it must, of course, be combated by bleeding.

In the tropical climates many kinds of fish are, at certain times, virulently poisonous; the yellow-billed sprat, and some others, frequently producing fatal effects before measures can be taken to counteract them. In all countries where muscles and lobsters are found, they occasionally produce not only disagreeable, but dangerous symptoms, which now and then cause death. Some people cannot at any time eat mackerel or herrings, without suffering considerable annoyance; conger eel produces the same effects upon others; while a few cannot swallow salmon or cod-fish with impunity. The poisonous qualities of muscles and lobsters have given occasion to a good deal of speculation; some persons consider them to depend upon the food they live upon at certain

seasons, and others from their being found on coppery banks, and impregnated with the metal; others again assert, that the poison consists in a little crab occasionally found in the fish, and the latter certainly appears the most feasible argument. Whatever the cause may be, whether in the fish itself being poisonous, or the stomach of the eater in some peculiar state, there are persons who can never eat muscles without suffering from these effects, while others seem to have the power of setting the poison at defiance. One thing in addition:—I once swallowed twelve of the small crabs, said to be poisonous, without experiencing the slightest ill effects. The poison of the lobster seems to reside in the coral, and if that be avoided, the fish may be eaten without the slightest fear.

Symptoms.—Soon after eating, a fulness and straitness felt in the chest and stomach; the breathing becomes oppressed and hurried, the face swelled and puffed, and an erysipilatous eruption covers the face, neck, and sometimes trunk of the body; vomiting and purging take place, the skin tingles and itches; twitching of the muscles comes on; the head swims, and now and then the case ends fatally.

Treatment—Give a strong emetic—twenty grains of ipecacuanha and two of tartar emetic; follow it immediately with a dose of calomel and castor oil, and while this is acting give twenty or thirty drops of æther in a little sugar and water, or acidulated brandy and water. You will find it advantageous to clear out the bowels by means of a purging enema.

CARBONIC ACID GAS.

It is necessary, that to be fit for the purpose of respiration, the atmospheric air should possess certain chemical qualities; and it occasionally happens that from some natural chemical process, the air in mines and other places, becomes not only unfit for respiration, but inimical to life. During the process of fermentation, carbon is thrown off, and if this be confined in a close place, the air becomes impure and unfit for breathing; the same takes place from burning charcoal. The escape of gas again, which is sulphuretted hydrogen, will, if confined soon render the air too impure for the purposes of life.

Now it is necessary to life that the blood should contain a

certain quantity of oxygen gas, and it attracts this during its passage through the lungs. If, then, from any cause, such as pressure upon the lungs themselves, or from the atmospheric air not containing a sufficient quantity of oxygen, the blood is not supplied with this principle in a sufficient quantity, the lungs soon cease to act, and the patient dies of suffocation. When a person is exposed to the influence of carbonic gas, he soon falls into a state of insensibility, and if this continues only a few minutes, his recovery is very problematical. I ought, however, to observe, that there can be no necessity to speak of symptoms, as the fact speaks for itself. A person is taken out of impure air in a state of insensibility—for all useful purposes this is a sufficient description. What are you to do? Your objects are, to expel the foul air from the lungs, and to re-establish respiration with that of a purer kind, to re-establish the action of the heart and arteries. The first thing, remove anything tight from about the neck and throat, and endeavour to establish natural respiration in the same manner as in recovering persons from drowning, &c. Apply heat to the feet, rub the body all over with flannels, or salt and water, or a weak solution of ammonia. Take some blood from the arm, if necessary, and give some stimulus, such as a drachm of sal volatile in water, by the mouth; continue these means either till your patient recovers, or till you find his recovery to be hopeless.

SUSPENDED ANIMATION.

Drowning.—When a person is taken out of the water in a state of insensibility, let him be placed on the right side, with the head and trunk a little raised; let him be carried to the nearest habitation, if there be one within reasonable distance. Let the wet clothes be taken off and the body rubbed quite dry, and endeavour to restore the action of the lungs and

heart in the following manner: let some one or two persons rub the body all over with hot cloths; let some other person place a piece of tobacco-pipe in one of the nostrils *, and close the other nostril and the mouth, (I of course suppose all apparatus out of the question,) blow through it with sufficient force to inflate the lungs, pressing upon the chest to expel the air, then inflating them again and again, and repeating this inflation and expulsion, and imitating, as nearly as possible, natural breathing, till the action of the lungs is restored, or all hope of doing so at an end. While this is going on, let heat be applied to the feet, and cloths wrung out of hot water, to the chest. If these means do not produce the desired effect, you must rub the body well with some stimulus, such as a strong solution of common salt; apply powerful stimulants to the nose, and throw up a powerful stimulating clyster.

As soon as the patient can swallow, you had better try and get down some kind of stimulus by the mouth, but avoid giving more than is absolutely necessary, as considerable reaction sometimes takes place, which might be increased to an alarming extent by its abuse.

After the patient has recovered from the immediate effects of the accident, the pulse will, in all probability, grow strong and quick, and the skin hot and feverish, with perhaps determination of blood to the head or lungs.

If the head should be much affected, you had better apply a few leeches to the temples, or take some blood by cupping from the back of the neck; put the feet into hot water, and give a strong dose of purgative medicine; a pill of five grains of calomel, and one hour afterwards a dose of the aperient mixture No. 1, and assist its action by means of the purgative enema No. 14, and a saline draught every six hours. If determination of blood to the lungs, which will be known by

* You may not be able to obtain this, and if not, you had better close one of the nostrils and the mouth, and blow into the other with your mouth till you expand the lungs sufficiently.

pain in the side, and difficulty of breathing, the case must be treated as one of inflammation of the lungs.

It is impossible to say after how long an immersion a person may be capable of recovery, or how long it may be before *signs* of recovery take place. I once recovered a child who had passed under a sluice thirty feet long, and who had been in the water a considerable time. In this case, nearly an hour elapsed before any signs of returning animation, and two before the recovery was complete; so long then as there is a shadow of hope, do not leave off your exertions.

I remember a case of this kind that I attended in conjunction with several other medical men. We had bestowed every possible pains for the recovery of a young man, who had been in the water a considerable time, and in which a longer period than usual had elapsed before we were in attendance: we had the advantage of every kind of apparatus, and finding ourselves unsuccessful, had left the house. This was about ten o'clock: two hours afterwards, I was summoned to the house of my late patient; supposing some of the family required my attendance, I obeyed, and was rather surprised at being ushered into the room of my patient, but more so on seeing the supposed corpse sitting up in bed drinking warm coffee.

The facts were simply these: we had left him to all appearance dead; a near relative, watching his face, fancied he could perceive signs of respiration. He held a looking-glass to his mouth; it was sullied. Without waiting to send for medical assistance, he acted over again the plans he had seen us pursue, and in which he assisted; and it was not till life was fully established, that he found time to send for me. I need scarcely observe that I was completely ashamed of myself; the case for some time literally haunted me, and has still left so vivid an impression on my memory, that I never leave a hopeless case of this kind without the most painful feelings, and certainly not till I am quite sure that *it is hopeless*.

SUSPENDED ANIMATION FROM COLD.—When a person has become insensible from the effects of cold, you must not imagine that nothing is to be done but apply the reverse; such a plan would almost to a certainty involve the death of the sufferer. Indeed you must depend upon friction rather than heat at all; in proportion to the cold to which the body has been exposed, must your approaches to anything like heat be gradual. If the cold has been very intense, first rub it with snow, gradually, very gradually, increasing the heat, and constantly rubbing the body till the circulation and respiration are established; when the friction has begun to produce some effect, and the pulse again beats, you may give a little very weak stimulus, but be very cautious, for reaction is likely to be high; two table-spoonfuls of brandy in some hot water will be sufficiently strong. When the powers of life are re-established, put your patient between warm dry blankets, and give him a dose of the Acetated Solution of Ammonia, or thirty drops of Antimonial Wine, and a basin of warm tea; and if reaction takes place, you must proceed as recommended under the head "Drowning." The same means may be used also to inflate the lungs if necessary.

Recapitulation.—A horizontal posture, friction with snow, gradually increasing the temperature. Artificial respiration: stimulants to the nose, slight stimulants internally.

SUSPENDED ANIMATION FROM HANGING.—The fatal effects of hanging, at least such cases as come under the form of accidents, if you can call them so, are produced by the ligature preventing the return of blood from the head, and causing apoplexy. The first thing to be done in these cases is to remove everything that presses on the throat, neck, or even arms, and immediately, if you possibly can, take some blood from the head. A surgeon would, of course, open the jugular vein, but you will not be able to accomplish that, and must therefore trust to cupping; never mind how bunglingly you perform the operation, as long as you get blood, that is the

object. If you have not a set of cupping instruments, and the case is urgent, try and manage an extemporaneous set. Knock off the feet of two tumblers for cupping-glasses, and instead of a scarificator, make half-a-dozen such gashes on the back of the neck as a scarificator would make, with a lancet or even a sharp penknife, and exhaust your glasses by putting a piece of lighted tow or paper into them. I have, in a case of emergency, cupped in this manner, and procured quite a sufficient quantity of blood. Let hot water or hot bricks be applied to the chest and feet, and endeavour to re-establish respiration by the means recommended under the head "Drowning." Use frictions over the whole body; throw up a strong stimulating purgative clyster, such as castor oil one ounce, turpentine half an ounce, and gruel half a pint; if turpentine is not to be had, use a glass of brandy, and rather than wait, substitute four ounces of linseed, or olive oil for the castor. As soon as the patient can swallow, give him six drachms of the acetated solution of ammonia, and a glass of brandy and water.

CHAPTER XII.

MIDWIFERY.

I HAD some doubts of the propriety of introducing the subject of midwifery in the present work; but, upon consideration, I determined to do so; for, though the objections to it are manifest, they are more than counterbalanced by the advantages; and, though it would be useless to enter into the complications of the art, I feel convinced that directions for the management of a common labour may, occasionally, be found useful to the class of readers for whom the volume is intended, and who may not be able to obtain the assistance of an accoucheur in the hour of need.

Fortunately cases of labour, in which there is a *necessity* for manual assistance, are very rare, and of these it would be useless to speak, as it is little likely that the management of them could, if described in this volume, be either understood or acted upon by its readers. All I mean by midwifery is, the performance of those common operations necessary, after delivery, to the safety of the mother and the child, and from an ignorance of which I have, more than once, known considerable inconvenience to result. It is very rare that interference before the birth of the child is either beneficial or necessary, and where it is so, can be employed with advantage by the professors of the art alone; but even in this country, where, Heaven knows, there is no scarcity of those professors, emergencies do, now and then, occur, in which as much information as I propose to communicate may be found highly useful.

One thing, however, I must observe, that child-bearing would be divested of half its terrors, ay and of half its

dangers too, if women themselves would act like reasonable creatures. But the fact is, that the moment a woman finds herself in the family way, (I speak of them generally,) she fancies that exertion will do her harm, and consequently avoids exercise; this produces a languor of circulation, and the food, probably taken in larger quantities, and of a more nutritive kind than usual, brings on a gross habit of body; the bowels become torpid, and, before her accouchement, she manages to get into the worst possible state of health to go through it with safety. Now if, instead of this, she took only her usual quantity of food, (for the increased demand is provided for by nature,) took regular but not violent exercise, and attended to the state of the bowels, the difficulties and dangers of midwifery would become almost a dead letter. Let any one who has tried the first plan, try the latter, and if she be not satisfied with the result, I will allow all I have said upon the subject to be sheer nonsense.

Every one knows that the term of gestation or carrying is nine months, at the expiration of which time labour commences. I shall consider this a natural process, with which you are not to interfere.

I will suppose, then, that a woman has gone her full time, and that the child is born; there still remains something to be done. The child is attached to the mother by an animal cord, or rope, called the funis, and this must be divided before it can be taken away. Now this funis, or, as (from its attachment) it is called, navel string, is formed of large blood-vessels, that supply the child with nourishment while in the womb; and if you were to cut it through, without first tying it round, the child would bleed to death. Tie it about an inch from the navel of the child, and again an inch nearer to the mother, with three or four threads twisted together, and divide it with a pair of scissars between the two ligatures.

The child may now be taken away, but there still remains the other portion of the cord, and a mass of spongy flesh called the placenta or cake, by which it is attached to the inner part

of the womb, and this must come away before the labour is complete.

After a short time the mother feels two or three pains, similar to, but slighter than those of labour. If you now run your finger along the cord, you will most likely be able to feel the cake or placenta to which it is attached. If you do, you may take hold of the cord with a napkin, and very gradually pull it downwards and forwards till it is extracted; but be very cautious not to do this till you can *feel the placenta or cake*, and to use no sort of jerk, but a continuous and equal force. Having done this, the labour, except in a case of twins, is over.

The mother should now lie quiet for an hour at least, and, in the mean time, the child may be dressed. On this I have only one observation to make, and that is on the management of the navel string. Nurses generally make such a pad round it, that not only is the child made uncomfortable and fractious, but by its being pulled out of its proper place, a sort of gap is left where it comes off, that occasionally gives rise to umbilical rupture. All you have to do is, to wrap it round with a piece of thin linen, smeared with pomatum, and lay it down upon the belly. In four or five days it will come off, and the application of a piece of pomatumed linen to the part is all that is necessary.

And now to return to the mother: a certain discharge of blood always takes place after labour; but, in some cases, this is so profuse, as to assume the form of hemorrhage, and endanger the life of the patient. Should such an unfortunate occurrence take place, throw off the bed-clothes to the sheet, admit cold air into the room, apply cold vinegar and water, and if it be very obstinate and profuse, *throw* cold water over the belly.

If it be a first child, the after-pains will, in all probability, be trifling, and may not require any medicine to relieve them; but if your patient has had many children, the case will probably be otherwise, and you had better give an opiate. This

may consist of twenty-five or thirty drops of laudanum in a saline draught, or ten or twelve grains of Dover's powder, repeating the one or the other as may be necessary.

In twelve hours, let the child be put to the breast, and in all probability it will attempt to suck; perhaps it will get no milk, but the action of sucking will urge the breast to secrete, and draw out the nipples before they get too full. The first milk will act as the best medicine the child can have. If, from any cause, the child cannot draw out the nipple, and this is not unlikely to happen in a first labour, fill a smooth-necked decanter, or a quart wine-bottle, with hot water; empty it, and immediately apply its mouth to the nipple, which, as it cools, will be gradually and easily drawn into its neck, the milk at the same time flowing into the bottle; then immediately apply the child to the breast.

On the second day after delivery, let your patient take a dose of castor oil, or twenty grains of jalap, and the same quantity of cream of tartar.

For the first three or four days after labour, the woman must take nothing but slops; I do not mean caudle, which is fortunately out of fashion, and which I rather think was an excellent friend to medical men--at least to their pockets,—but plain gruel, or thick barley-water, with a third part milk. After that time, she may take a proportion of animal food, and gradually return to her usual style of living.

Few women, except in the higher classes of society, keep sufficiently long in a recumbent position after child-birth, and hence arise complaints that a little patience and submission to a present inconvenience would prevent. As soon as possible after delivery, let a broad calico bandage be bound round the body, so as to give a comfortable support; not pressing from above downwards, but from below upwards; and do not let your patient sit up for at least ten or twelve days, and then only for a short time.

It would be as useless as impossible, to give (in a work of

this kind) a description of the diseases incident to child-bed. I will, however, describe the symptoms that should induce you to send immediately for a medical man, at whatever expense and inconvenience.

1. The retention of the placenta beyond two hours.
2. A severe fit of shivering.
3. Great pain and *tenderness* over the belly.
4. The milk going away, accompanied by fever.
5. General heat and fever; a white tongue; a full pulse, and a dry skin.
6. The urine being entirely suppressed, or passed with difficulty and pain.
7. Cases of hemorrhage would certainly form a strong reason for instantly sending for professional assistance; but unfortunately their *course is so rapid*, that unless obtained within a comparatively short time, it would be useless.

I must once more repeat, that the present volume is in no respects intended to supersede medical assistance; but cases do occur in which it is impossible to obtain it in sufficient time, and some in which it may not be obtainable at all. It is on this account that I have carried on the treatment of the different complaints to their termination; at least as far as curative means can be employed with advantage. Such symptoms as are dubious, unimportant, or not necessary to mark either the disease or the treatment, I have altogether omitted, upon the supposition that they would tend only to confuse the domestic practitioner, without producing any adequate advantage.

It is impossible for the most talented and scientific practitioner to fix in every case the line of demarcation where fatal symptoms commence; but there are certain indications, such as low muttering delirium, accompanied by picking the bed-clothes, &c., that may be always considered the forerunner of dissolution.

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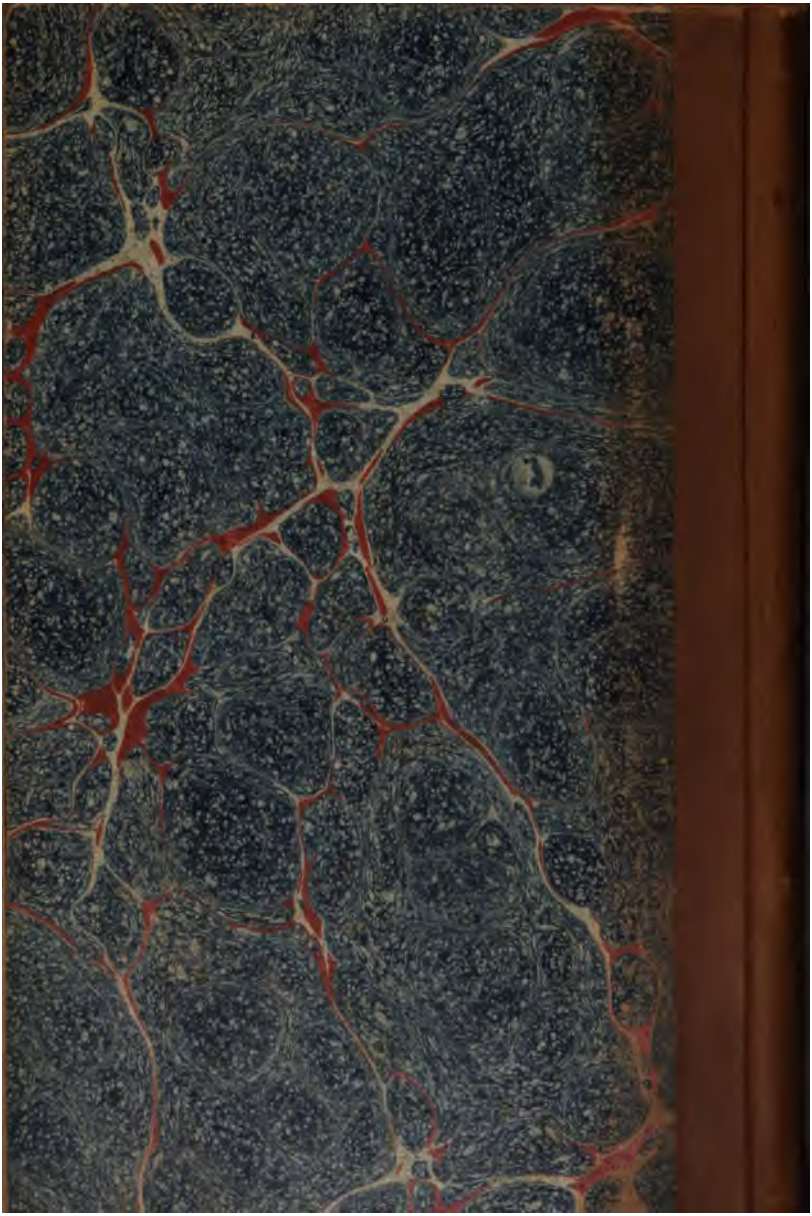
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